Service Manual

PCM Digital Piano

SX-PX33V/PX44V

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EP), (EK), (XL), (XR), (XS), (XD), (X)

Photo: SX-PX33V

AREAS

(M): U.S.A.
(MC): Canada
(XM): Mexico
(EN): Norway, Sweden, Denmark, Finland
(EH): Holland
(EF): France, Austria, Italy, Belgium
(EZ): Germany
(EW): Switzerland
(EP): Spain
(EK): the United Kingdom
(XT): Taiwan
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore, South Africa
(XD): Saudi Arabia
(X): the Middle East, Indonesia, Hong Kong, the Philippines, Thailand, Formosa

Specifications

		SX-PX33V	SX-PX44V
KEYBOARD		76 KEYS (16 NOTES POLYPHONIC)	88 KEYS (16 NOTES POLYPHONIC)
SOUND		PIANO, E PIANO, HARPSI	PIANO 1, 2, E PIANO 1, 2, HARPSI, VIBETONE
EFFECT		DIGITAL CELESTE	
TRANSPOSE		UP (+C#, +D, +D#, +E, +F, +F#) DOWN (−B, −A#, −A, −G#, −G)	
MIDI		MIDI PROGRAM CHANGE	
MODE SET	MIDI ON	OMNI ON	OMNI ON, PROGRAM CHANGE
	OTHERS	MIN RANGE, PIANO TUNING	SOSTENUTO, MIN RANGE, PIANO TUNING
TERMINALS		MIDI.....IN, OUT, THRU AUX IN .....input level 500mV 33KΩ L, R/R+L LINE OUT .....output level 1.8V 600Ω L, R/R+L OTHERS.....PEDAL IN, HEADPHONES JACK, AC IN	
OTHERS		POWER SW, MAIN VOLUME, TUNE, INITIAL KEY	
OUTPUT		15W×2	
SPEAKERS		16cm (6-5/16″)×1, 12cm (4-23/32″)×1	
POWER REQUIREMENT		125W, 90W (NORTH AMERICA) AC 120/220/240V 50/60Hz, AC 120V 60Hz (NORTH AMERICA)	
DIMENSIONS (W×H×D)		120.8cm×77.6cm×46cm (47-17/32″×30-9/16″×18-1/8″)	137.3cm×77.6cm×46 (54-1/32″×30-9/16″×18-1/8″)
NET WEIGHT		40Kg (88.2lbs.)	45.5Kg (100.3lbs.)
ACCESSORIES		STAND, MUSIC RACK, AC CORD	

*Specifications are subject to change without notice for further improvement.

Technics

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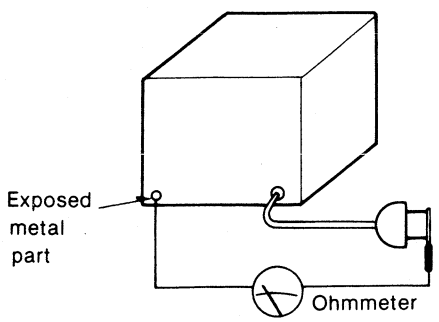
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

• Safety Precaution

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• Insulation Resistance Test

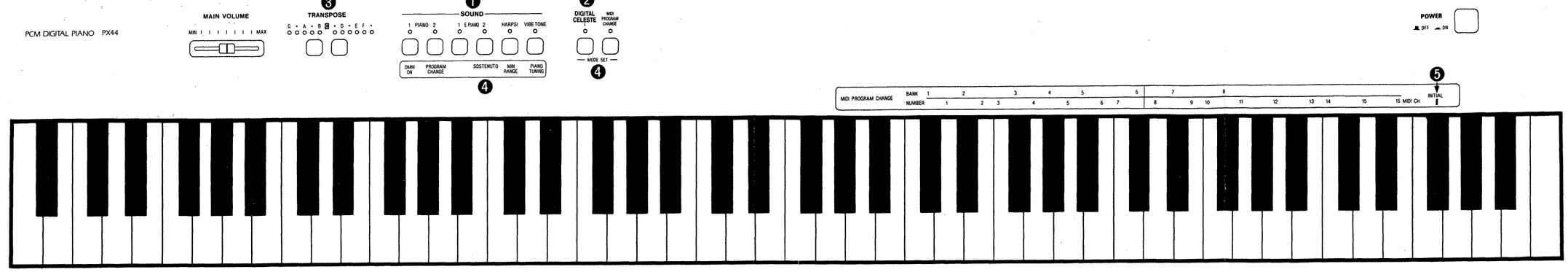
1. Unpulg the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc..
   Mesurements should range from 4MΩ to infinity to all exposed parts.



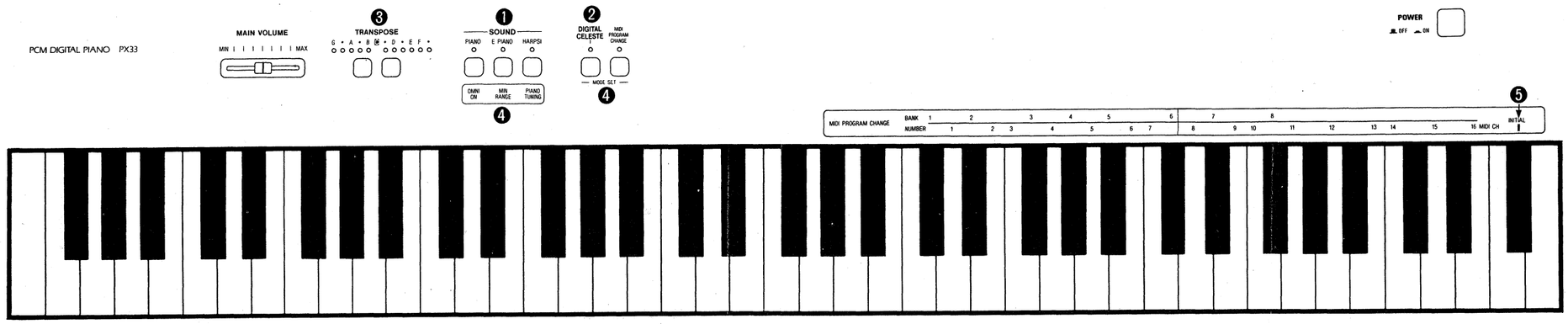
Resistance = 4MΩ to ∞

ARRANGEMENT OF CONTROL PANEL

■ SX-PX44V



■ SX-PX33V



BASIC FUNCTION

❶ SOUND

Each sound features Touch Response, which increases the volume and changes the timbre as the velocity-sensitive keyboard is played harder. The tones from a maximum of 16 simultaneously pressed keys will sound.

❷ DIGITAL CELESTE

A celeste effect can be applied to give the sound greater depth.
When the **DIGITAL CELESTE** button is on, the number of notes which can sound simultaneously is reduced to 8.

❸ TRANSPOSE

The **TRANSPOSE** control is used to shift the tuning (key) of the entire instrument in semitone steps across an entire octave. Adjust the tuning by moving the slide control from the normal key of C.

❹ MODE SET

When the **MODE SET** buttons (**DIGITAL CELESTE** and **MIDI PROGRAM CHANGE**) are on, the following two modes can be set.

1. **MIN RANGE**
   When this button is turned on, if a key is pressed very slowly, it may not produce any sound.

2. **PIANO TUNING**
   When this button is on, the sound is a little lower for low notes as on a regular piano. When it is off, the tuning is even.

3. **SOSTENUTO** (PX44V)
   When this button is turned on, the soft pedal works as a **SOSTENUTO** pedal.
   The pedal applies a sustain effect to the sound of the keys only if is pressed while the keys are pressed.

❺ INITIAL KEY

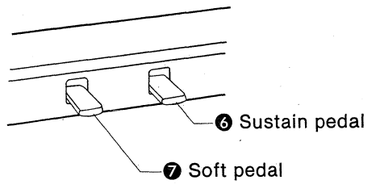
The **INITIAL** Key is used to set the standard settings mode by manufacturer.
- While holding down both **MODE SET** button, press the **INITIAL** key, and press the **MIDI PROGRAM CHANGE** button to turn both **MODE SET** buttons off.

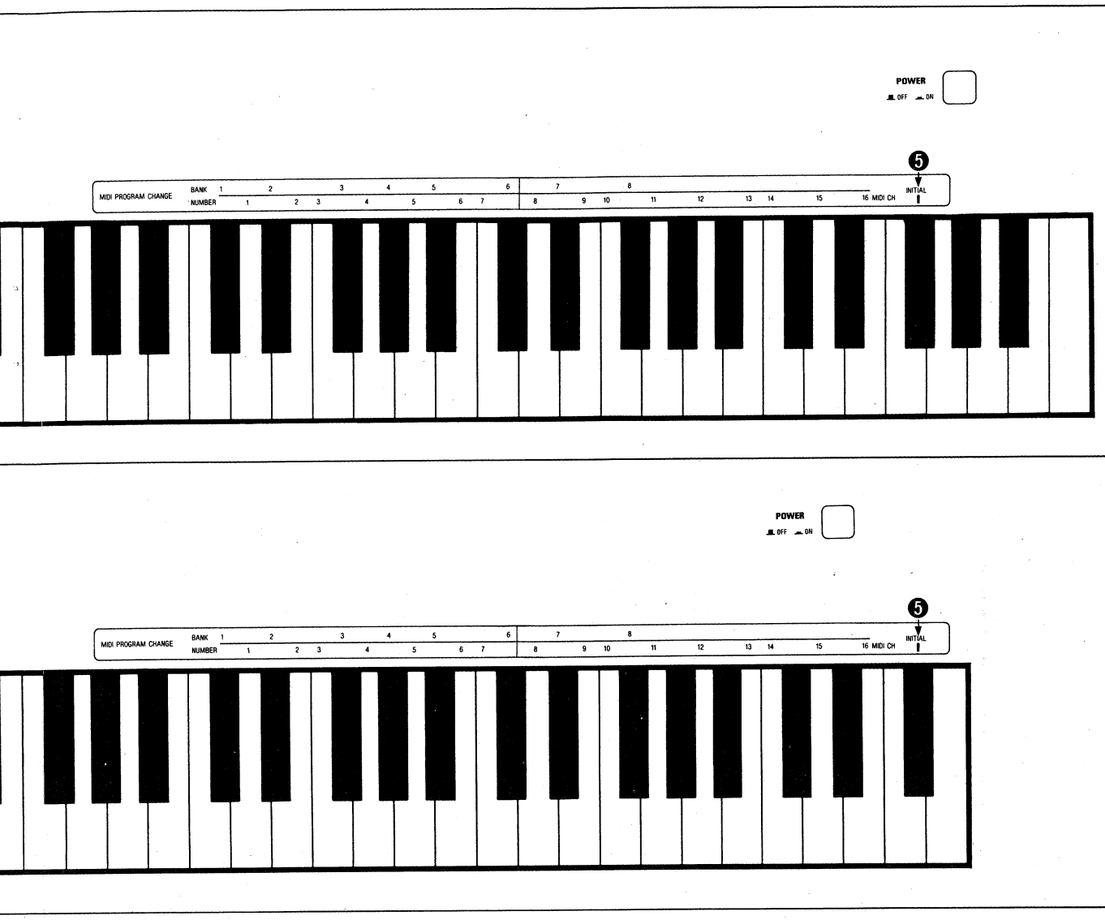
❻ SUSTAIN PEDAL

When a key is released while this pedal is depressed, the sound is sustained so that it lingers and slowly fades out.
- The tones of the far right keys are automatically sustained just like in an acoustic piano.

❼ SOFT PEDAL

When the pedal is depressed, the sound is softer and the volume is lower.
- **PX44V**: The soft pedal can also be used as a **SOSTENUTO** pedal.





❺ INITIAL KEY

The **INITIAL** Key is used to set the standard settings mode by manufacturer.

- While holding down both **MODE SET** button, press the **INITIAL** key, and press the **MIDI PROGRAM CHANGE** button to turn both **MODE SET** buttons off.

❻ SUSTAIN PEDAL

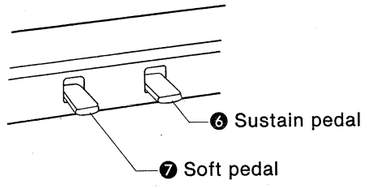
When a key is released while this pedal is depressed, the sound is sustained so that it lingers and slowly fades out.

- The tones of the far right keys are automatically sustained just like in an acoustic piano.

❼ SOFT PEDAL

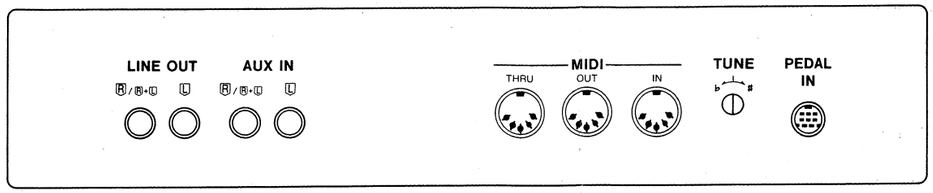
When the pedal is depressed, the sound is softer and the volume is lower.

- **PX44V**: The soft pedal can also be used as a **SOSTENUTO** pedal.



CONNECTION TERMINALS

(On the rear panel)



■ TUNE

During an ensemble performance with other instruments, fine adjustments of pitch can be made using this knob.

■ PEDAL IN

Connect the cord from the included stand to this terminal.

■ AUX IN (input level 500 mV, 33 KΩ)

Other instruments such as a rhythm machine or sound module can be connected to the piano so that the sound is output from the piano.
To receive monaural sound, connect instruments to the R/R+L terminal.

■ LINE OUT (output level 1.8 V 600Ω)

By plugging into a Technics Tone Cabinet or a high-power amplifier, the sound can be reproduced at high volume. (Use the R/R+L terminal when outputting monaural sound.)

■ MIDI (Musical Instrument Digital Interface)

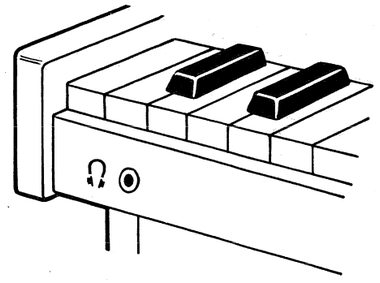
MIDI is standard specification that enables connection to equipment such as synthesizers and personal computers. Data transmission and reception are possible between the Technics Digital Piano instruments provided with MIDI terminals.

IN: The terminal that receivers data from external equipment.
OUT: The terminal that transmits data from the piano to external equipment.
THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

- Use a 5-pin DIN cord (less than 15 m long) for these connections.

■ PHONES

For silent practice headphones may be used.
When plugged in, the speaker system is automatically switched off, and sound is heard only through the headphones.



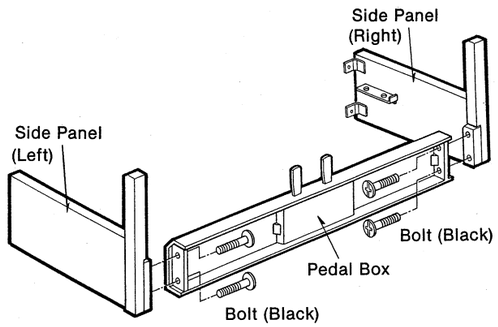
HOW TO ASSEMBLE THE PIANO

■ ASSEMBLY PARTS

- Pedal Box 1
- Crossboard 1
- Side Panel (Right) 1
- Bolt ..... Black (8), Brown (4)
- Side Panel (Left) 1
- Cord Clamper 5

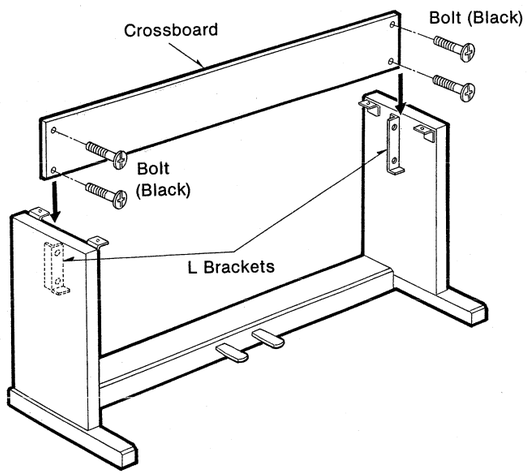
■ ASSEMBLY

1 Attach the side panels to the pedal box using the four black bolts.



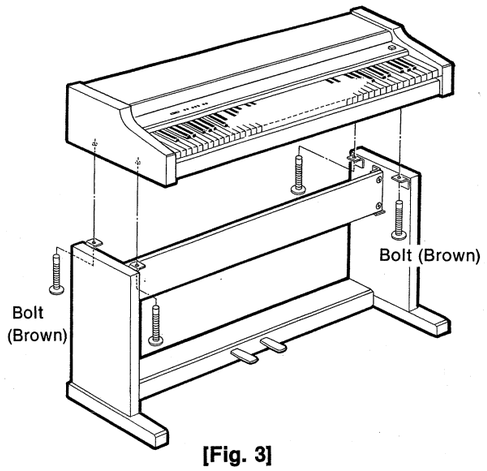
[Fig. 1]

2 Place the stand upright, and fit the crossboard onto the L brackets. Secure it with the four black bolts.



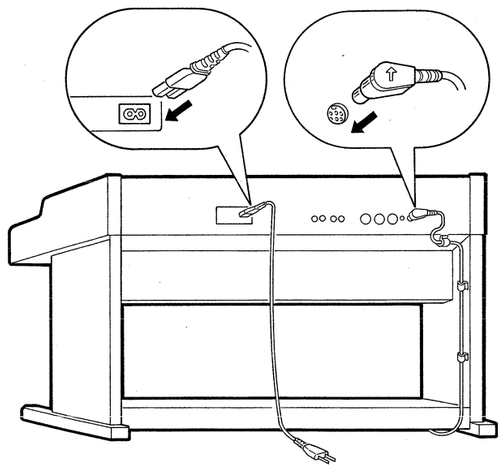
[Fig. 2]

3 Set the piano unit on the stand, and secure it to the stand with the four brown bolts.



[Fig. 3]

4 Attach the cord from the pedal box. Attach the power cord.

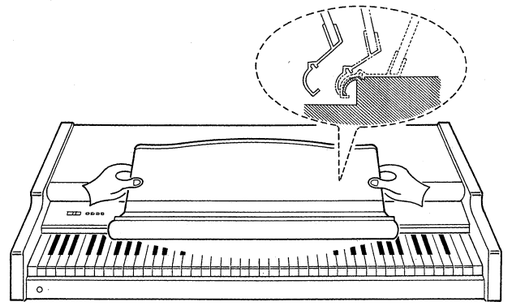


[Fig. 4]

DISASSEMBLY INSTRUCTIONS

1 Music Rack

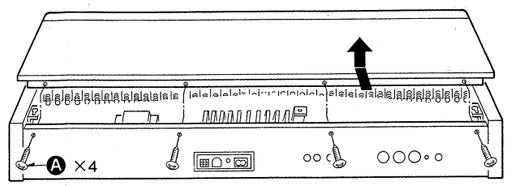
1. Remove the music rack as shown Fig. 5.



[Fig. 5]

2 Top Cover

1. Remove the top cover holding screws located on the rear board. (Ⓐ 4pcs.)
2. Remove the top cover, sliding it forward and it.

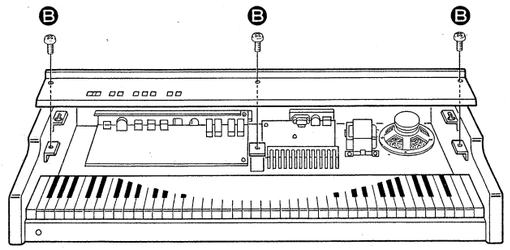


[Fig. 6]

3 Control Panel

- Open the top Cover according to procedure 2.

1. Remove the 3 screws Ⓑ which fasten the control panel.
2. The Control panel can be removed.



[Fig. 7]

4 Keyboard Ass'y

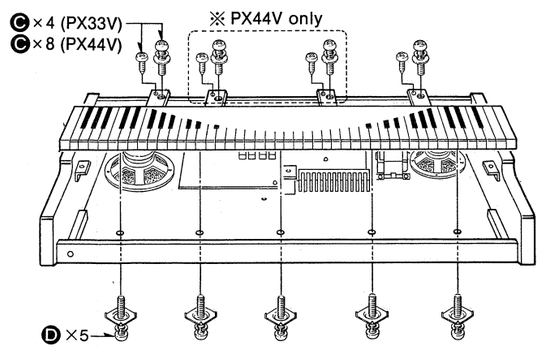
- Remove the control panel according to procedure 3.

■ **PX33V:**

1. Remove the 4 screws Ⓒ and 5 screws Ⓓ which fasten the keyboard.
2. The keyboard can be removed.

■ **PX44V:**

1. Remove the 8 screws Ⓒ and 5 screws Ⓓ which fasten the keyboard.
2. The keyboard can be removed.

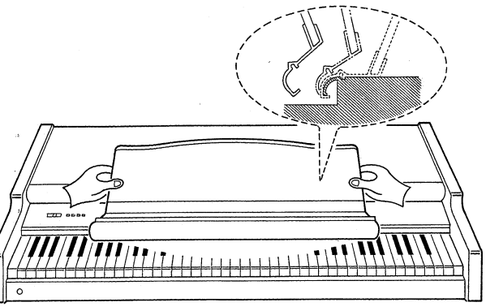


[Fig. 8]

DISASSEMBLY INSTRUCTIONS

1 Music Rack

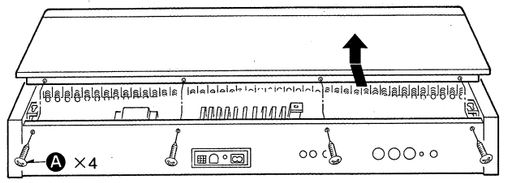
1. Remove the music rack as shown Fig. 5.



[Fig. 5]

2 Top Cover

1. Remove the top cover holding screws located on the rear board. (Ⓐ 4pcs.)
2. Remove the top cover, sliding it forward and it.



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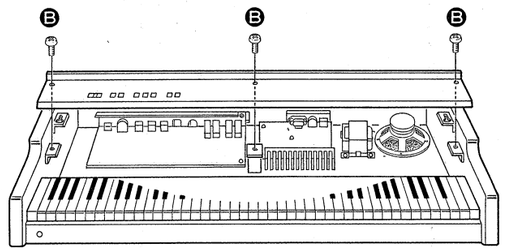


[Fig. 7]

4 Keyboard Ass'y

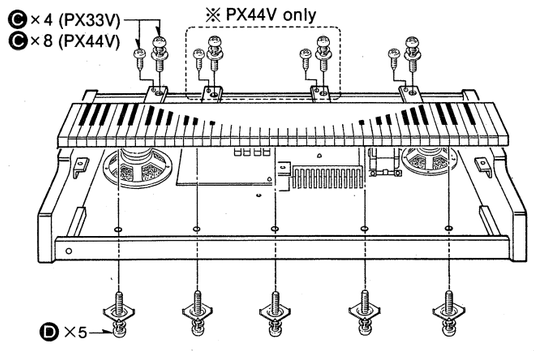
- Remove the control panel according to procedure 3.

■ PX33V:

1. Remove the 4 screws Ⓒ and 5 screws Ⓓ which fasten the keyboard.
2. The keyboard can be removed.

■ PX44V:

1. Remove the 8 screws Ⓒ and 5 screws Ⓓ which fasten the keyboard.
2. The keyboard can be removed.



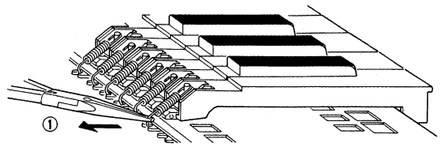
[Fig. 8]

5 Key (s)

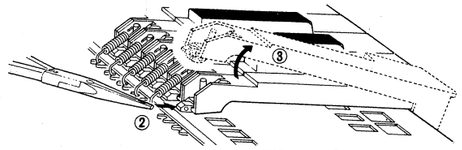
- Remove the keyboard according to procedure 4.

1. Remove the spring from the key as shown Fig. 9.
2. Pushing friction piece of key as shown Fig. 10. Key can be removed from chassis.
3. Lift up the key and take it out from chassis.

Note:
In the case of disassembly black key remove the right and left white key at first and after that black key can be removed.



[Fig. 9]



[Fig. 10]

6 Printed circuit boards

* Open the top cover and pull out the connector of printed circuit boards.

CP Control Panel P.C.B.

- Remove the 5 screws Ⓔ on the control panel P.C.B.

MAIN Main P.C.B.

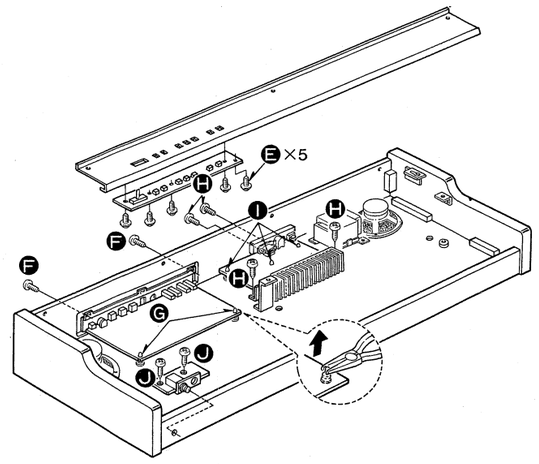
- Remove the 2 screws Ⓕ on the back of the rear panel.
- Release the 2 clows Ⓖ of P.C.B. holder to remove the Main P.C.B.

AS Amp & Power Supply P.C.B.

- Remove the 4 screws Ⓗ which fasten the amp unit.
- Release the 3 claws Ⓘ of P.C.B. holder to remove the Amp & power supply P.C.B.

HP Headphones P.C.B.

- Remove the 2 screws Ⓙ on the headphones P.C.B.



[Fig. 11]

PRECAUTIONS BEFORE SERVICING

■ Symptoms which appear to be signs of trouble

The following changes in performance may occur in the Technics digital piano but do not indicate trouble.

Phenomenon	Remedy
No sound is produced when the keyboard is played.	No sound is produced if the **MAIN VOLUME** is set to **MIN.** Use the sliding control to set the volume to an appropriate level.
When many keys are pressed at the same time, some of the keys do not produce sound.	• The tones from a maximum of 16 simultaneously pressed keys will sound. When the **DIGITAL CELESTE** button is on, the maximum number of tones which can be produced is reduced to 8.
There is no change when a **SOUND** or **TRANSPOSE** button is pressed.	When a **SOUND** or **TRANSPOSE** button is pressed while a keyboard key or the sustain pedal is depressed, the sound does not change. These functions become available from the next played note after the key and the sustain pedal are released.

■ Precautions for measuring of the output waveforms.

1. Please set the INITIAL mode before measurement.
   • INITIAL mode: While holding down both MODE SET buttons (DIGITAL CELESTE and MIDI PROGRAM CHANGE), press the INITIAL key.
2. After INITIAL mode, set the measurement conditions as each check points.
3. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of triggering.
4. Since the 1/10 of the test probe is used, the indicated voltage value on bottom part of the each waveform photo is 1/10 of the actual value. (e.g. 0.2V/cm should be 2.0V/cm)

■ Important safety notice:

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   • Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   • All resistors are 1/4WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagrams.

(TABLE-1)

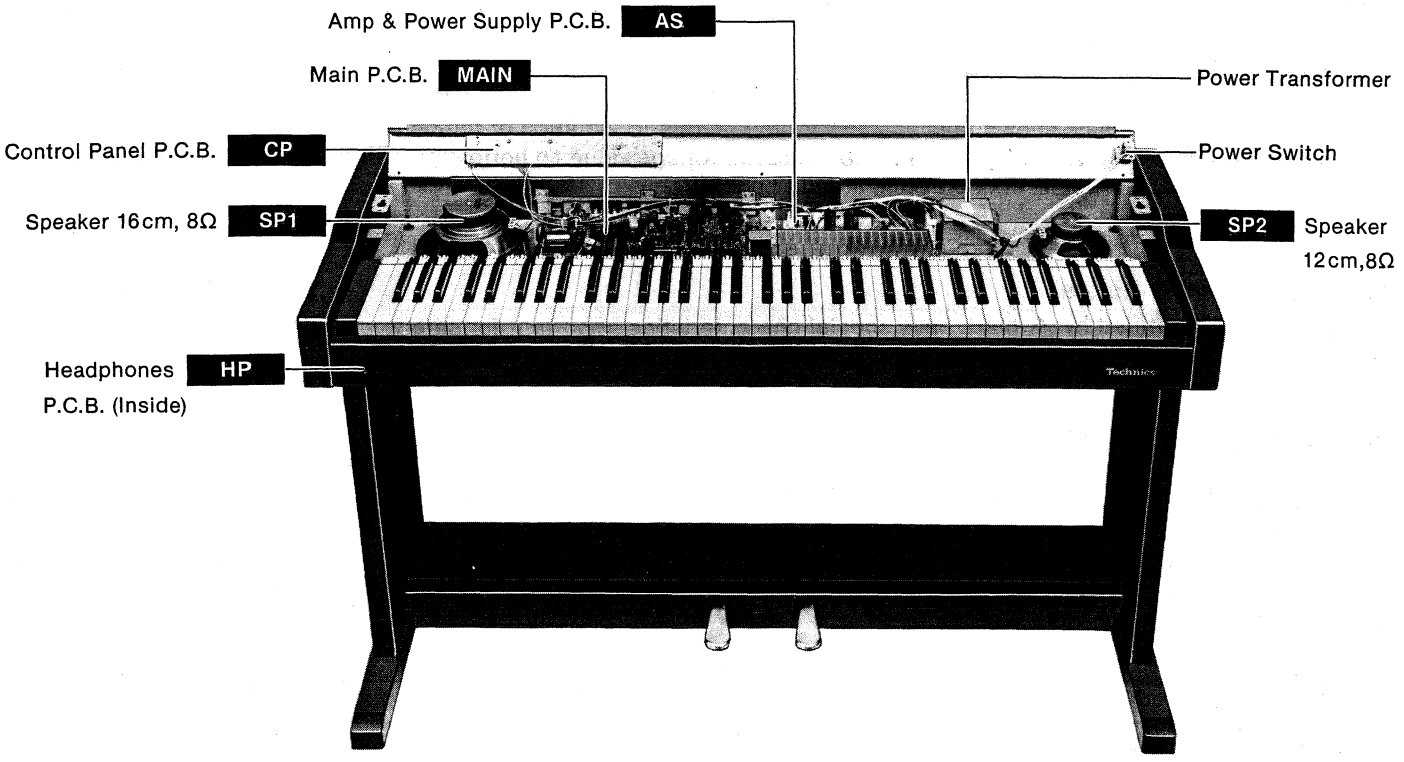
SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type)
Ⓕ	Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type)	[F]	Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type)	[F]	Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS
   • Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10% Tolerance)
   • Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type, ±20% Tolernace)

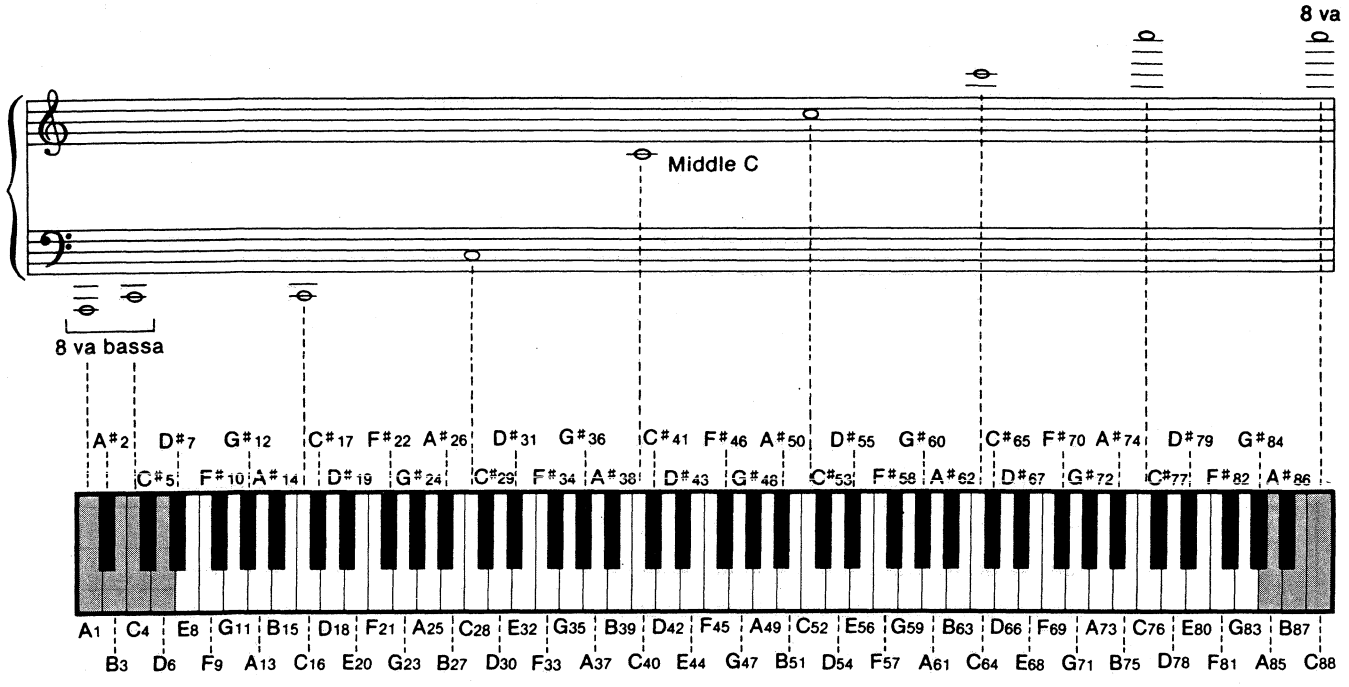
(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarised Electrolytic Capacitors	ECEA−KN−type
Ⓨ	Non-Polarised Electrolytic (for Network System)	ECEA—Y—type
(MS)	Aluminum Electrolytic Capacitors (Low leakage current type)	ECEA—M—type
Ⓩ	Aluminum Electrolytic Capacitors (Low impeadance type)	ECEA—Z—type
(TF)	Metalized Plastic Film Capacitors (TF Series)	ECQV—type
	Polyester Film Capacitors	ECQB—type
○	Temperature Compensating Ceramic Capacitors	ECC—type
	High-Dielectric Constant Ceramic Capacitors	ECK—type
	High-Dielectric Constant Ceramic Capasitors	ECR—type
	Ceramic Capacitors (Cylinder type)	ECBA—type
	Metalized Polyester Film Capacitors for Across the Line	ECQ—EW—type
	Aluminum Electrolytic Capacitors for smooting Circuit	ECES—type

PARTS LOCATION



KEYBOARD RANGES



is for PX44V only

MIDI IMPLEMENTATION CHART

[digital piano]
[SX-PX33V/SX-PX44V/SX-PX55 (M)/SX-PX66 (M)]

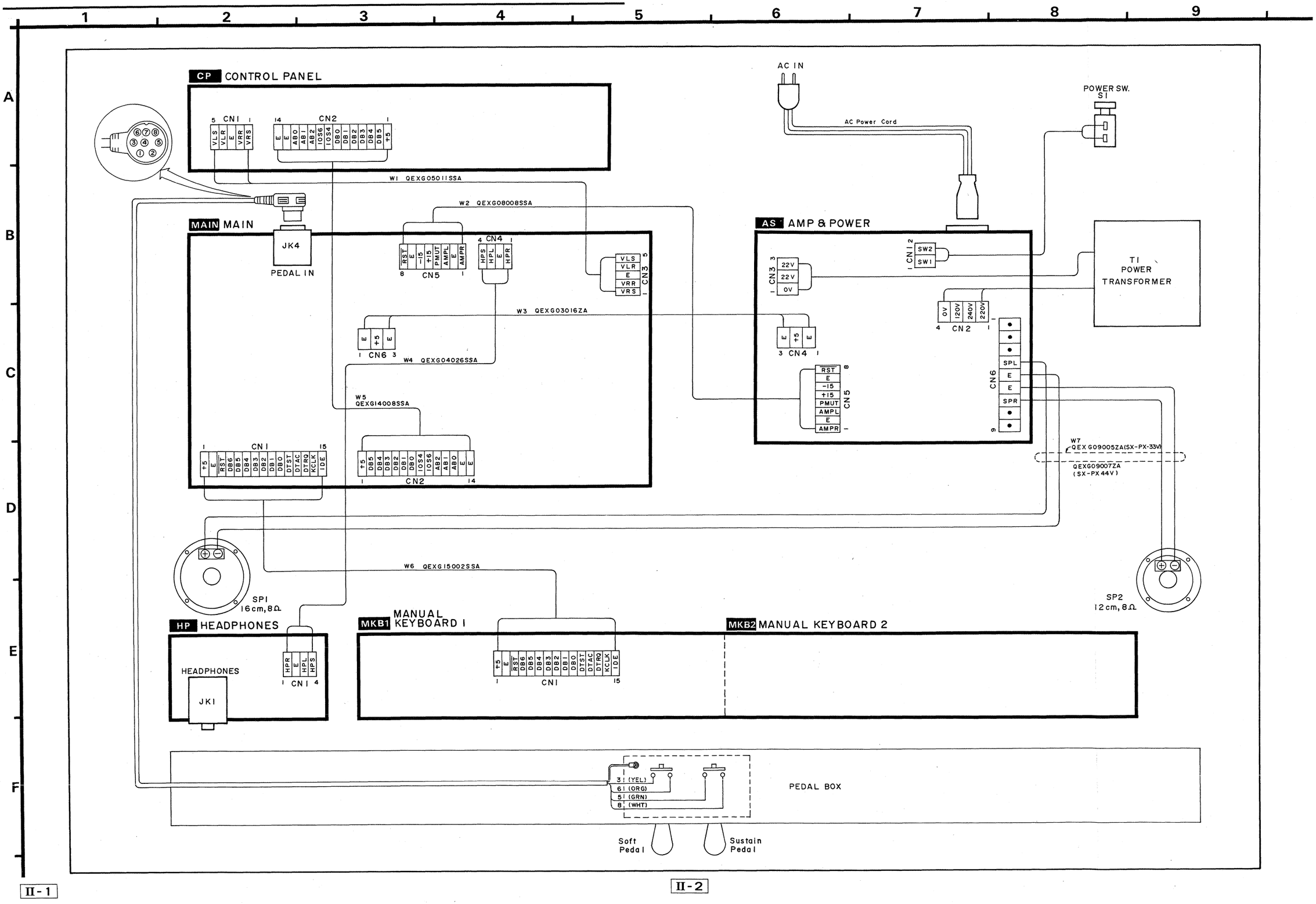
Function...			Transmitted	Recognized	Remarks
Basic Channel	Default		1 (PX33/PX44), 1~16 (PX55/PX66)	1 (PX33/PX44), 1~16 (PX55/PX66)	(PX55/PX66: memorized)
	Changed		1 ~ 16	1 ~ 16	
Mode	Default		3	1 (PX33/PX44); 1, 3 (PX55/PX66)	(PX55/PX66: memorized)
	Messages		×	×	
	Altered		———	———	
Note Number	True voice		28 ~ 103 (PX33) 21 ~ 108 (PX44/PX55/PX66) ———	**1 ~ 126 21 ~ 119	
Velocity	Note ON		○	○	
	Note OFF		× (9nH: V=0)	×	
After Touch	Key's		×	×	
	Ch's		×	×	
Pitch Bender			×	×	
Control Change		64	○ (PX33/PX44) *○× (PX55/PX66)	○ (PX33/PX44) *○× (PX55/PX66)	sustain pedal
		66	× (PX33) ○ (PX44) *○× (PX55/PX66)	× (PX33) ○ (PX44) *○× (PX55/PX66)	sostenuto pedal
		67	○ (PX33/PX44) *○× (PX55/PX66)	○ (PX33/PX44) *○× (PX55/PX66)	soft pedal
		93	○ (PX33/PX44) *○× (PX55/PX66)	○ (PX33/PX44) *○× (PX55/PX66)	digital celeste
Prog Change	True #		○ (PX33) *○× (PX44/PX55/PX66) 0 ~ 127	○ (PX33) *○× (PX44/PX55/PX66) 0 ~ 2 (PX33) 0 ~ 5 (PX44) 0 ~ 6 (PX55) 0 ~ 9 (PX66)	
System Exclusive			×	×	
System Common	Song Pos		×	×	
	Song Sel		×	×	
	Tune		×	×	
System Real Time	Clock		×	×	
	Commands		×	×	
Aux Messages	Local ON/OFF		×	×	
	All Notes OFF		○	○	
	Active Sense		○	○	
	Reset		×	×	
Notes			*○× ..... Whether or not the data for each of these items is transmitted or received can be set. ** Changes depending on the position of the transpose.		

Mode 1: OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes
Mode 3: OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : NO

- This product adheres to MIDI specifications as published by the Japan MIDI Association.

MEMO

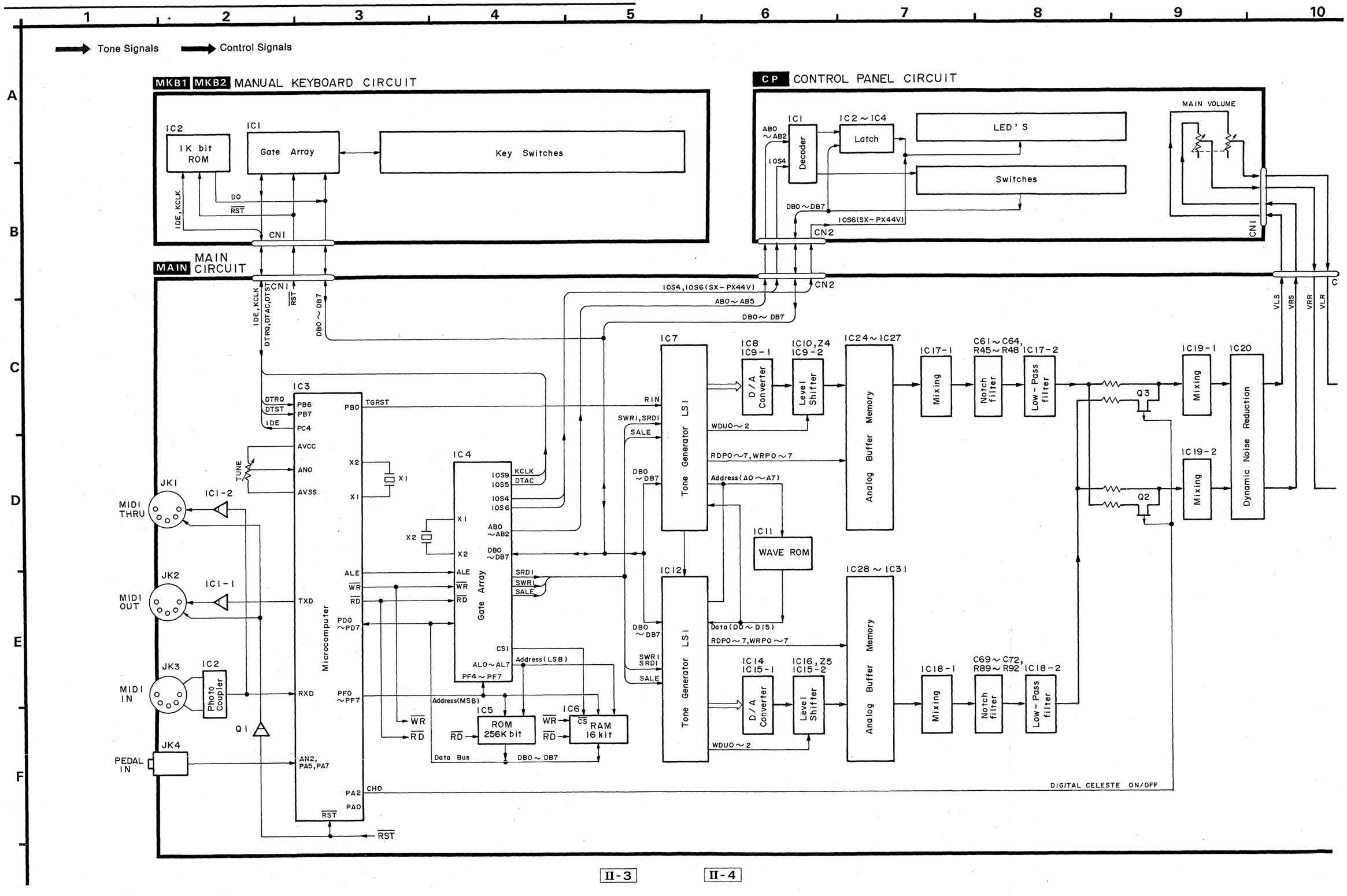
WIRING CONNECTION DIAGRAM



II-1

II-2

BLOCK DIAGRAM



CP CONTROL PANEL CIRCUIT

IC1 Decoder
IC2 ~ IC4 Latch
LED'S
Switches
MAIN VOLUME
AB0 ~ AB2
IOS4
DB0 ~ DB7
IOS6(SX-PX44V)
CN2
CN1

IOS4, IOS6(SX-PX44V)
AB0 ~ AB5
DB0 ~ DB7

S1 Power SW
AC IN
T1 POWER TRANSFORMER
AS AMP & POWER SUPPLY CIRCUIT
CN1
AC1
AC2
CN2
CN3
Primary Circuits
D1, D2, D3 ~ D6
Rectifier
Q1, Q2
Reset Circuit
IC2, Q3, D12
+5V Switching Regulator
IC3
+15V Regulator
IC4
-15V Regulator
CN4
CN6
+5
RST
-15
+15

VLS VRS VRR VLR

IC7 Tone Generator LSI
RIN
SWRI, SRDI
SALE
DB0 ~ DB7
WDU0 ~ 2
RDP0 ~ 7, WRP0 ~ 7
Address(A0 ~ A7)
IC8 IC9-1 D/A Converter
IC10, Z4 IC9-2 Level Shifter
IC24 ~ IC27 Analog Buffer Memory
IC11 WAVE ROM
IC12 Tone Generator LSI
Data(D0 ~ D15)
IC28 ~ IC31 Analog Buffer Memory
IC14 IC15-1 D/A Converter
IC16, Z5 IC15-2 Level Shifter
WDU0 ~ 2

IC17-1 Mixing
C61 ~ C64, R45 ~ R48 Notch filter
IC17-2 Low-Pass filter
Q3
Q2
IC19-1 Mixing
IC19-2 Mixing
IC20 Dynamic Noise Reduction
IC18-1 Mixing
C69 ~ C72, R89 ~ R92 Notch filter
IC18-2 Low-Pass filter

IC21-2 Lch Mixing
IC21-1 Rch Mixing
IC23-1 Lch AUX AMP
IC23-2 Rch AUX AMP
AMPL
AMPR
PMUT
RST
MUTING CONTROL CIRCUIT
CN5
CN4
JK8 L
JK7 R/R+L
LINE OUT
JK6 L
JK5 R/R+L
AUX IN

IC1-2(Lch) Power Amplifier
IC1-1(Rch) Power Amplifier
SPL
SPR
SP1, 16cm, 8Ω
SP2 12cm, 8Ω

HP HEADPHONES
JK1
HPS
HPL
HPR
IC22-1, Q10, Q11
IC22-2, Q8, Q9
Headphones
CN1

DIGITAL CELESTE ON/OFF

MAIN HP MAIN AND HEADPHONES CIRCUIT BOARD

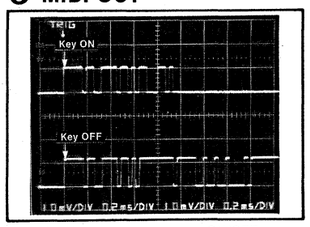
1 2 3 4 5 6 7 8 9 10

A B C D E F

❸ TUNE

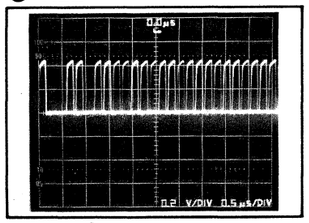
- Tune
  - #.....+5V
  - ⟆
  - center.....+2.5V
  - ⟆
  - ♭.....0V

❺ MIDI OUT

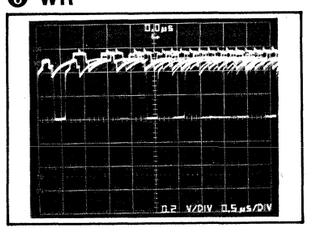


- C_{52} Key.....ON/OFF

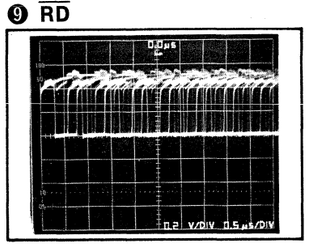
❼ ALE



❽ $\overline{WR}$



❾ $\overline{RD}$

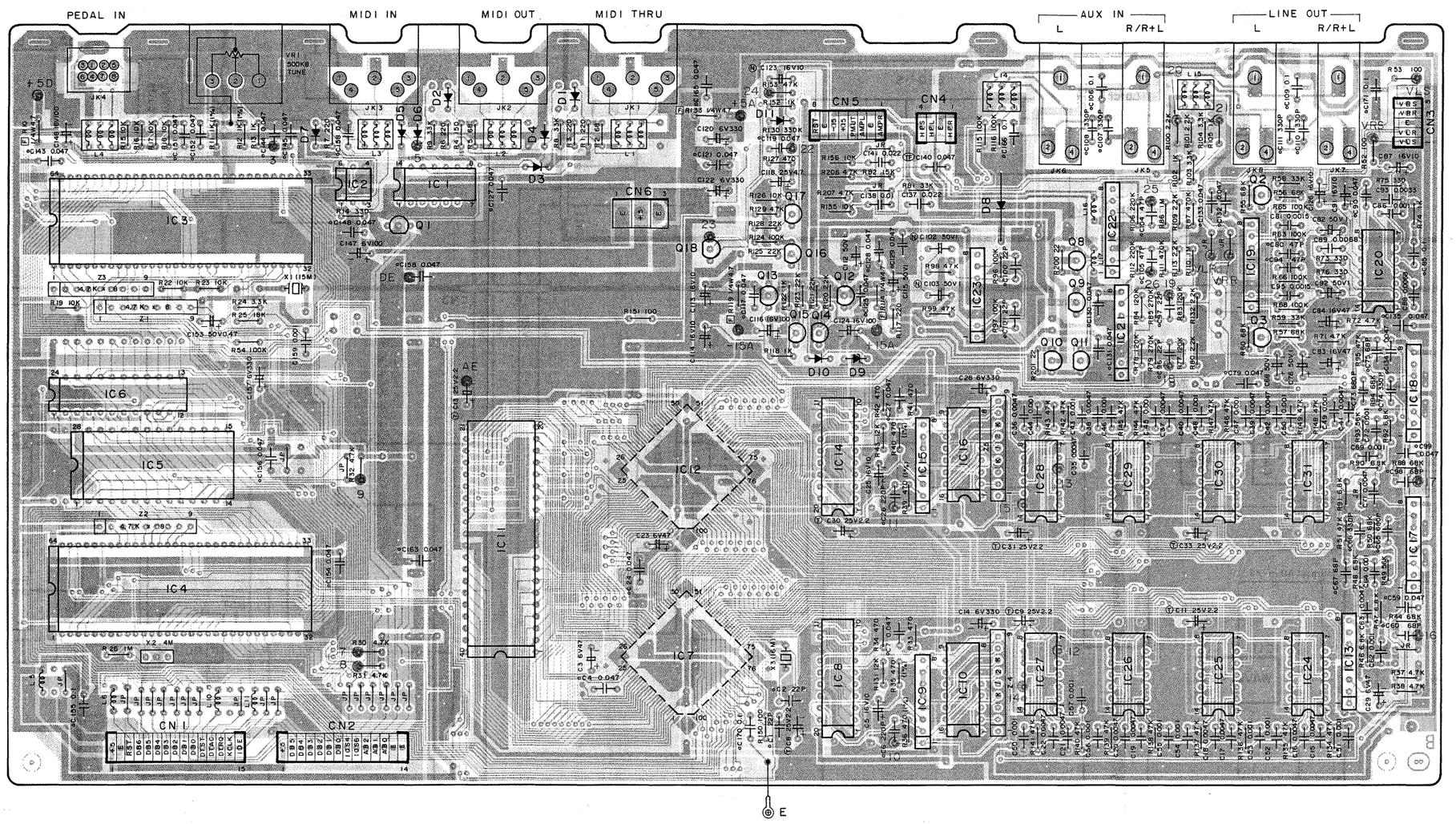


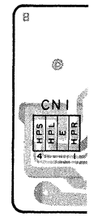
MAIN

Circuit view on top of P.C.B.

SXPG203411

HP





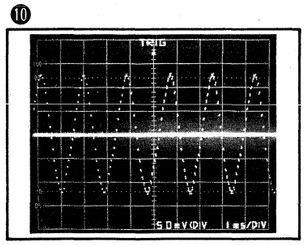
MAIN

NOTES:

- IC'S
  - IC1:
  - IC2:
  - IC3:
  - IC4:
  - IC5:
  - IC6:
  - IC7, 12:
  - IC8, 14:
  - IC9, 15:
  - IC10, 16:
  - IC11:
  - IC13, 17~19
  - 21~23:
  - IC20:
  - IC24~31:
- TRANSISTO
  - Q1, 13, 15,
  - Q2, 3:
  - Q8, 10:
  - Q9, 11:
  - Q12, 14, 17:
- DIODES
  - D1~7, 10, 1
  - D8:
  - D9:

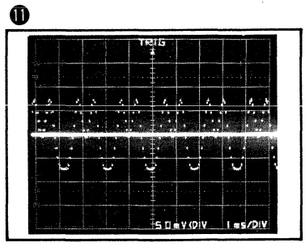
*The tone signal output varies with the level of key pressing force.
In this measurement, the waveform obtained with maximum key pressing force is shown.

❿



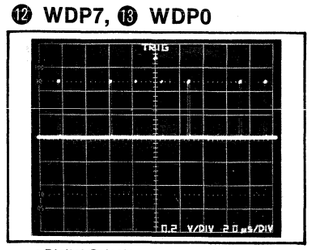
- Sound.....Piano
- Keyboard.....C_{52}

⓫



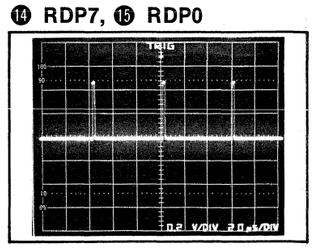
- Sound.....E Piano
- Keyboard.....C_{52}

⓬ WDP7, ⓭ WDP0



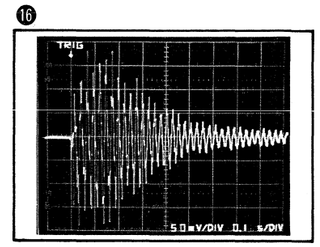
- Digital Celeste.....ON
- Keyboard.....C_{52} (8 times)

⓮ RDP7, ⓯ RDP0



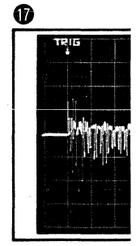
- Digital Celeste.....ON
- Keyboard.....C_{52} (8 times)

⓰



- Sound.....Piano
- Keyboard.....C_{52}

⓱



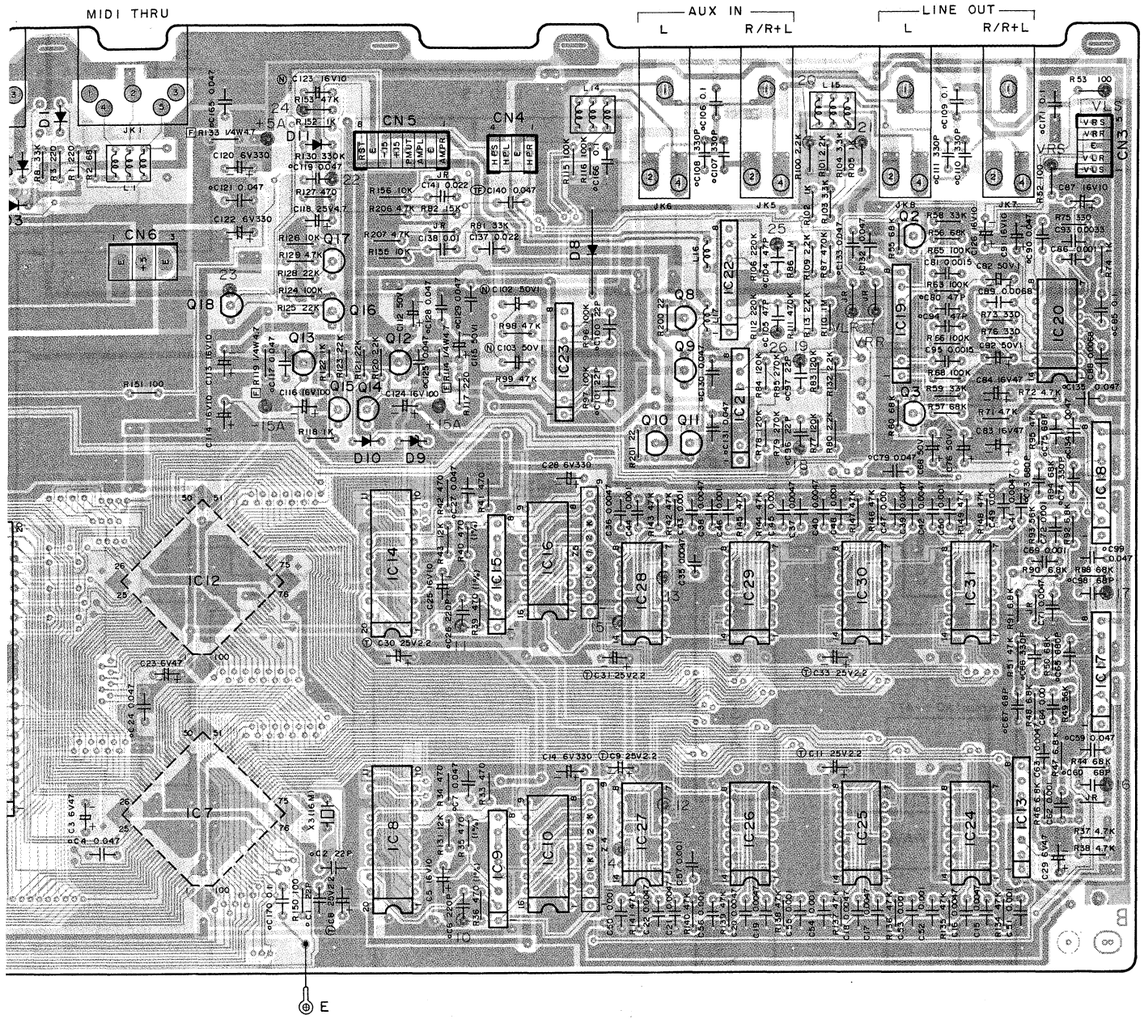
- Sound.....
- Keyboard.....

RD

6 7 8 9 10 11 12 13 14

Circuit view on top of P.C.B.

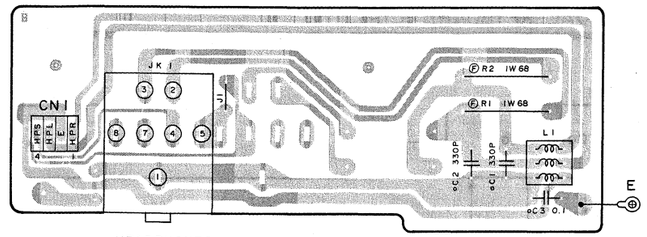
SXPG203411



sing force is shown.

HP

SXPG203711B



MAIN

NOTES:

- IC'S

IC1:	SVIGM74LS07
IC2:	SVIGTLP513
IC3:	SVIG7810HCW
IC4:	SVIGM603A114
IC5:	QSIG2PX33AX0
IC6:	BR6116-100
IC7, 12:	MN6635
IC8, 14:	SVIGBA9221
IC9, 15:	SVIGM5238L
IC10, 16:	SVIGT74H4051
IC11:	SVIGU3C04165
IC13, 17~19, 21~23:	SVIGM5218L
IC20:	SVIGLM1894N
IC24~31:	SVIGM74H4066

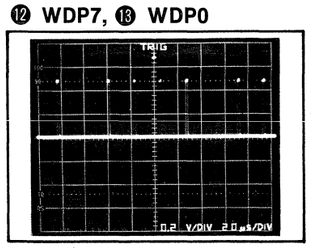
- TRANSISTORS

Q1, 13, 15, 16, 18:	2SA1015-GR
Q2, 3:	2SJ105GR
Q8, 10:	2SC3940ARS
Q9, 11:	2SA1534ARS
Q12, 14, 17:	2SC2320LFG

- DIODES

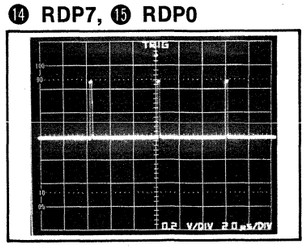
D1~7, 10, 11:	MA165TA5
D8:	SVDGRK14S
D9:	MA4062

⑫ WDP7, ⑬ WDP0



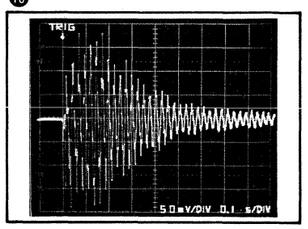
- Digital Celeste .....ON
- Keyboard.....C_{52} (8 times)

⑭ RDP7, ⑮ RDP0



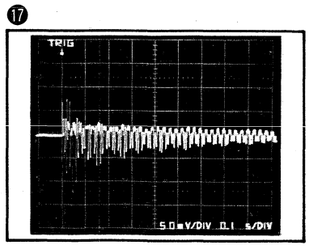
- Digital Celeste .....ON
- Keyboard.....C_{52} (8 times)

⑯



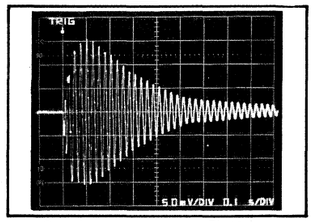
- Sound .....Piano
- Keyboard.....C_{52}

⑰



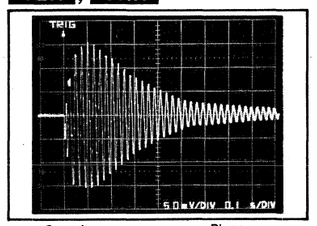
- Sound .....E Piano
- Keyboard.....C_{52}

VLS , VRS



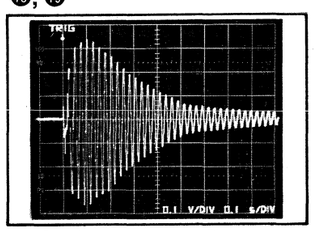
- Sound .....Piano
- Keyboard.....C_{52}

VLR , VRR



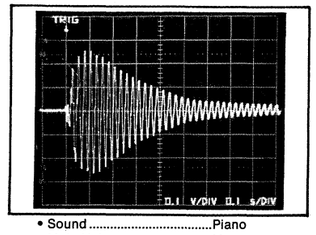
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

⑱, ⑲



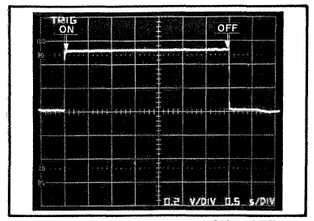
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

⑳, ㉑



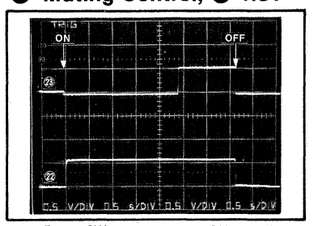
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

㉒ RST



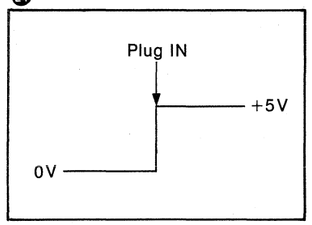
- Power SW .....ON → OFF

㉓ Muting Control, ㉒ RST



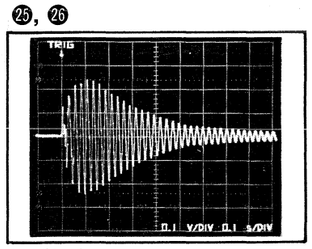
- Power SW .....ON → OFF

㉔



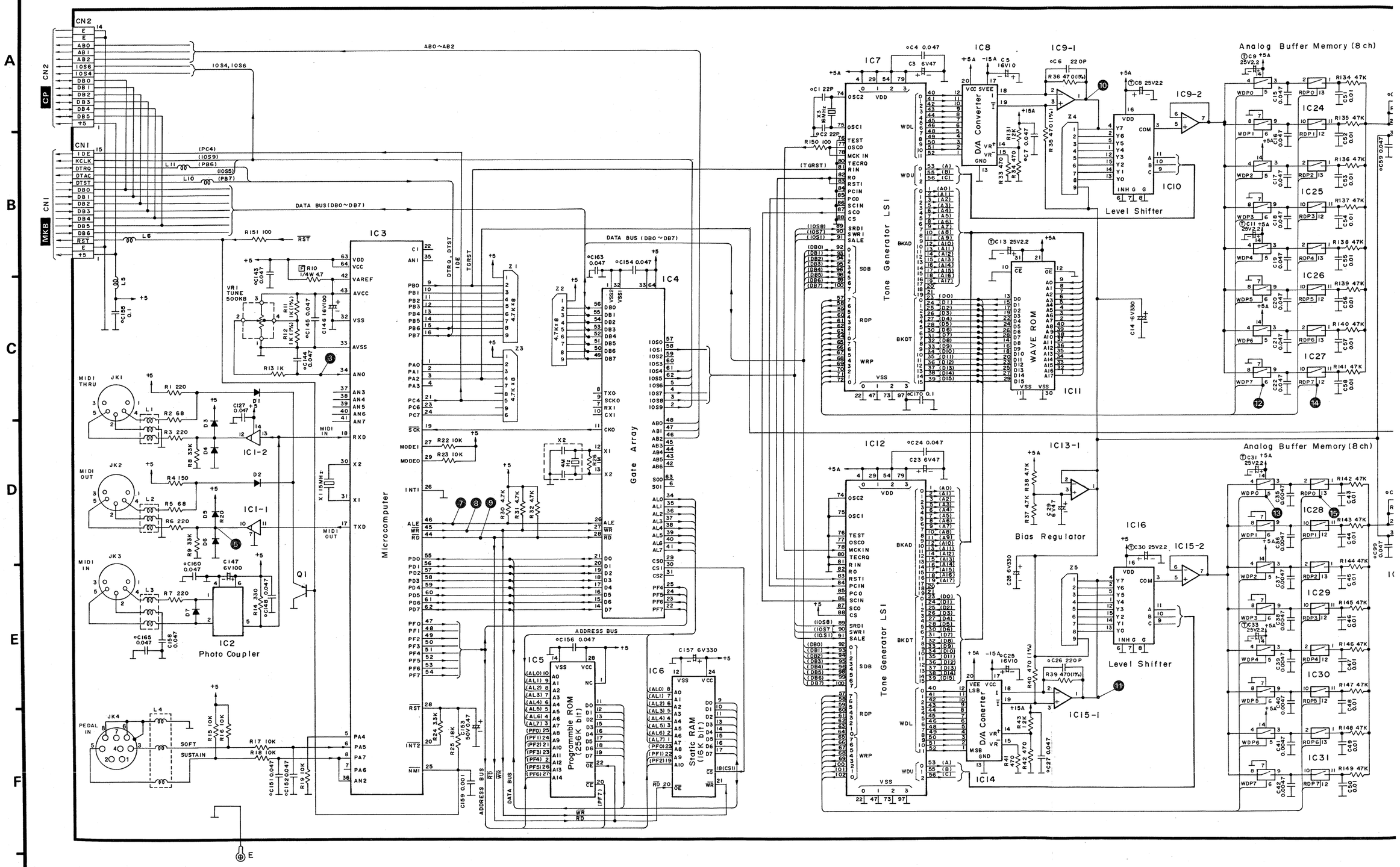
- Headphones .....Plug IN

㉕, ㉖

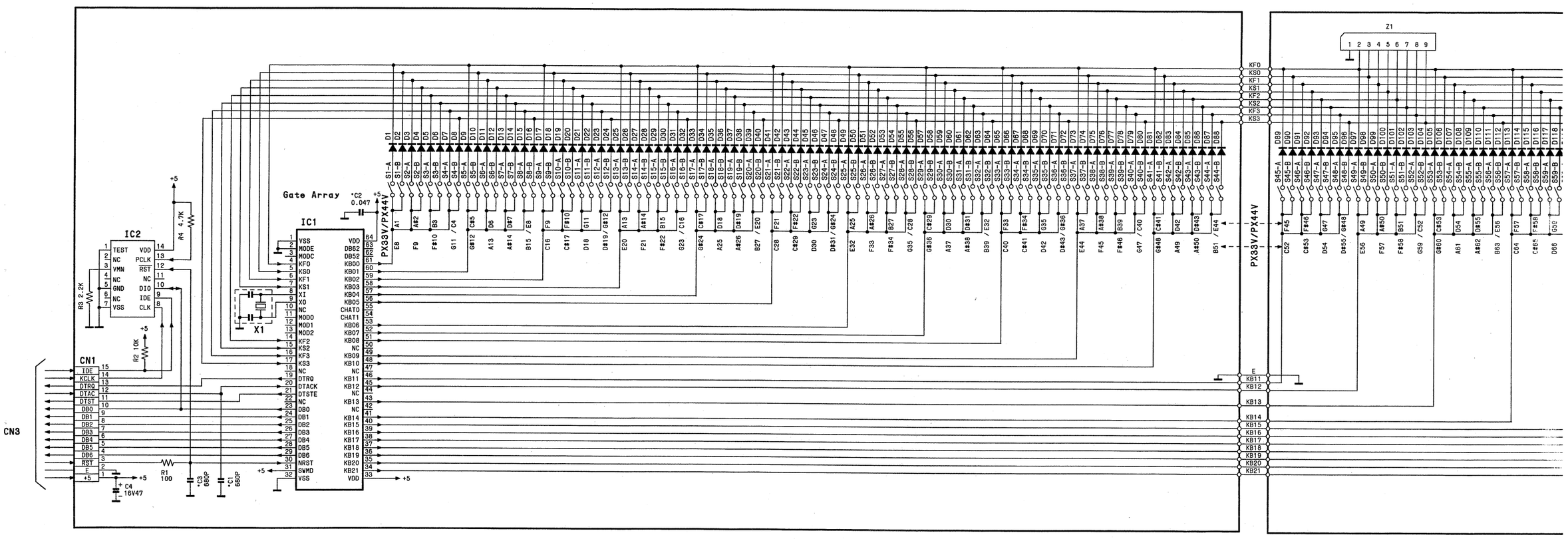


- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

MAIN AND HEADPHONES CIRCUIT DIAGRAM



MKB1 MANUAL KEYBOARD 1 CIRCUIT DIAGRAM



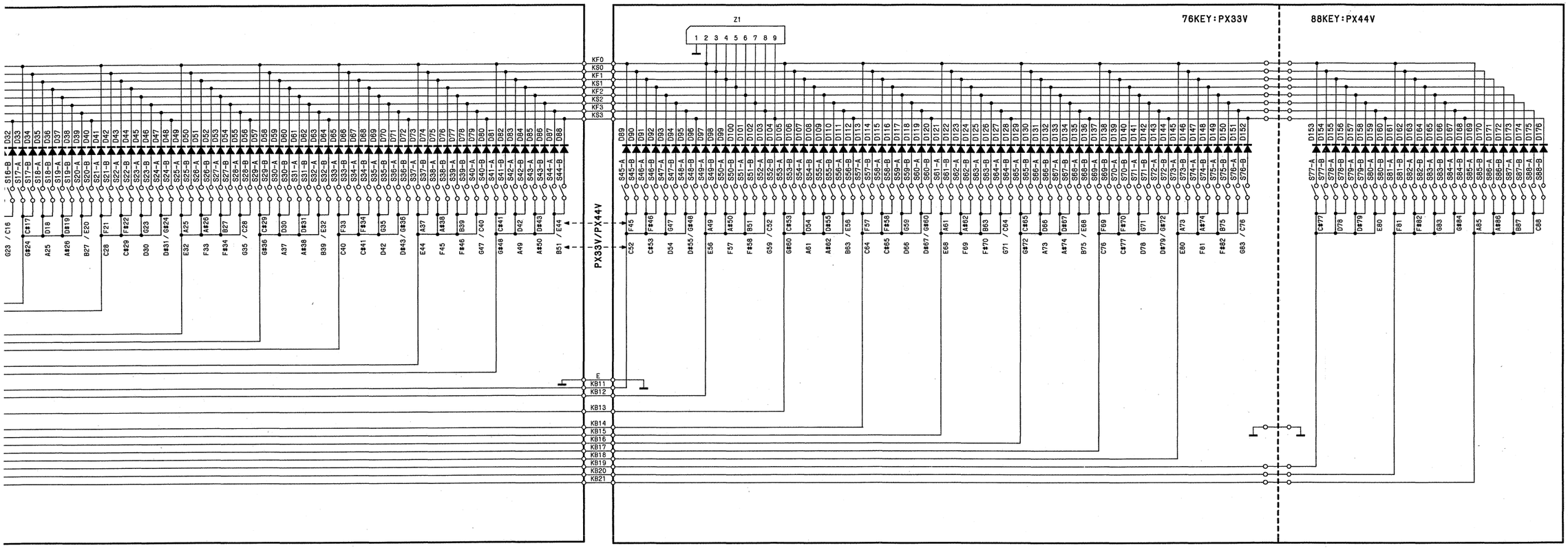
MKB2 MANUAL KEYBOARD 2

MKB1

NOTES:

- IC'S
  - IC1: MN50020PGV
  - IC2: MN1231
- DIODES
  - D1~88: MA162A

MKB2 MANUAL KEYBOARD 2 CIRCUIT DIAGRAM



MKB1

NOTES:

- IC'S
  - IC1: MN50020PGV
  - IC2: MN1231
- DIODES
  - D1~88: MA162A

MKB2 ... SX-PX33V

NOTES:

- DIODES
  - D89~152: MA162A

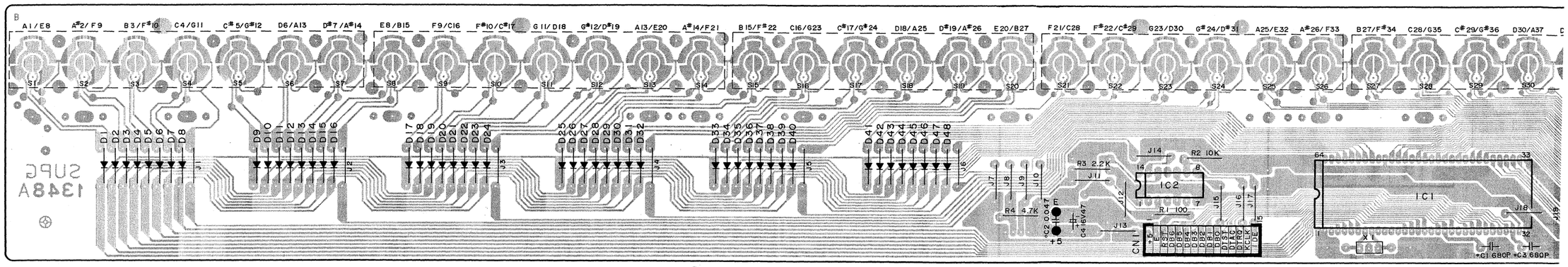
MKB2 ... SX-PX44V

NOTES:

- DIODES
  - D89~176: MA162A

MKB1 MKB2 MANUAL KEYBOARD 1, 2 CIRCUIT BOARD

MKB1 MANUAL KEYBOARD 1 CIRCUIT BOARD



MKB1

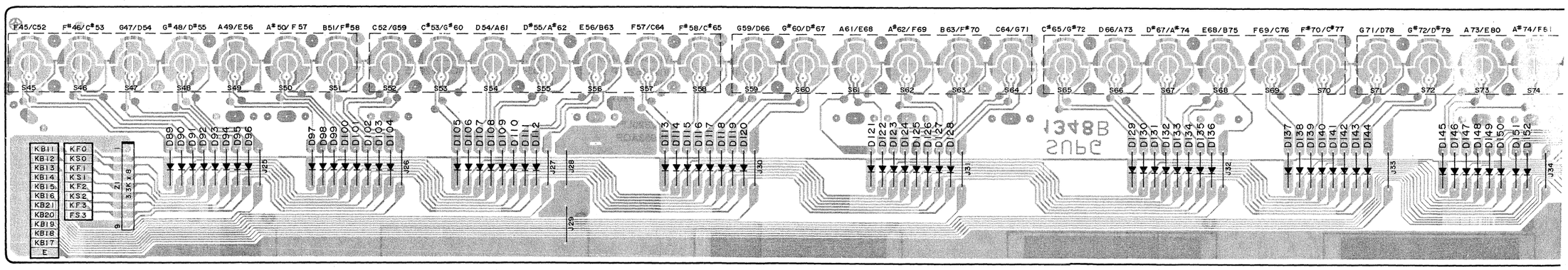
NOTES:

- IC'S
  - IC1: MN50020PGV
  - IC2: MN1231
- DIODES
  - D1~88: MA162A

MKB2 MANUAL KEYBOARD 2 CIRCUIT BOARD

- SX-PX33V

SXPG13



MKB2 ... SX-PX33V

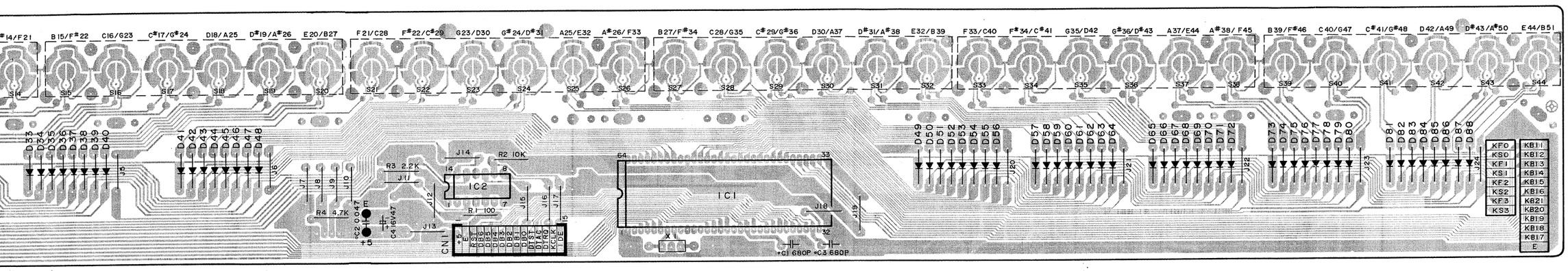
NOTES:

- DIODES
  - D89~152: MA162A

T BOARD

5 6 7 8 9 10 11 12 13 14

SXPG134841A



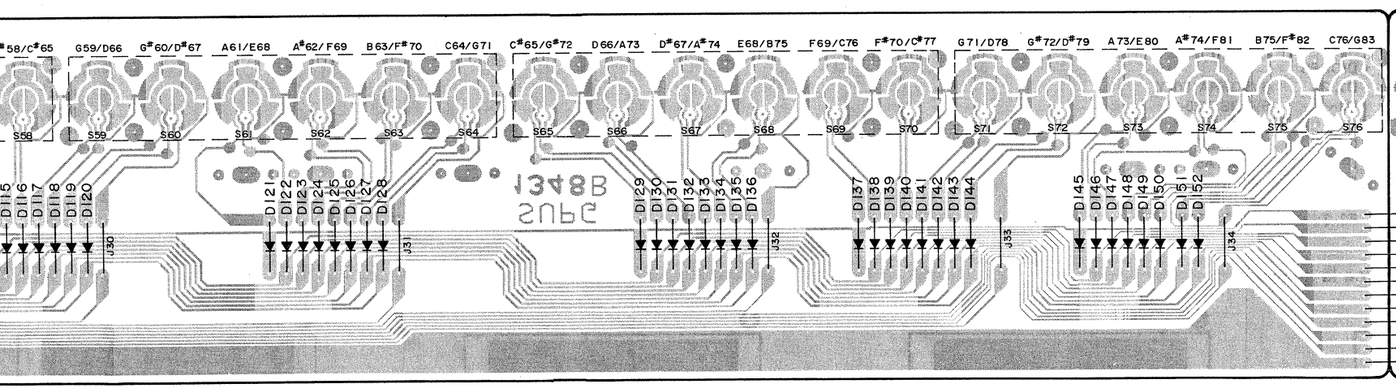
MKB1

NOTES:

- IC'S
  - IC1: MN50020PGV
  - IC2: MN1231
- DIODES
  - D1~88: MA162A

- **SX-PX33V**

SXPG134851B



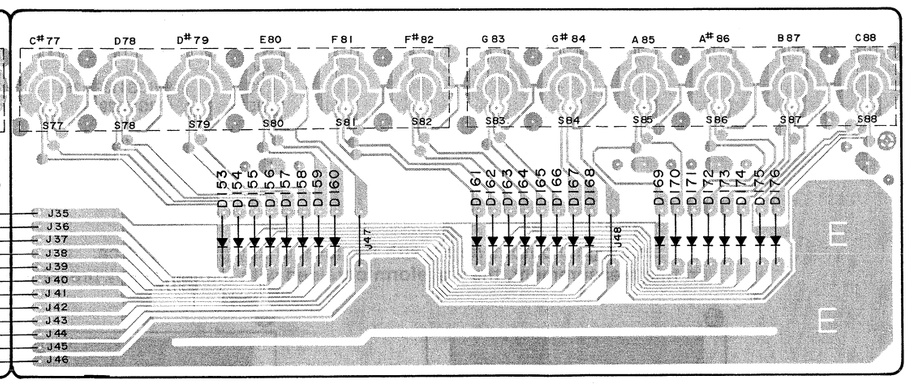
MKB2 ... SX-PX33V

NOTES:

- DIODES
  - D89~152: MA162A

- **SX-PX44V**

SXPG134841B



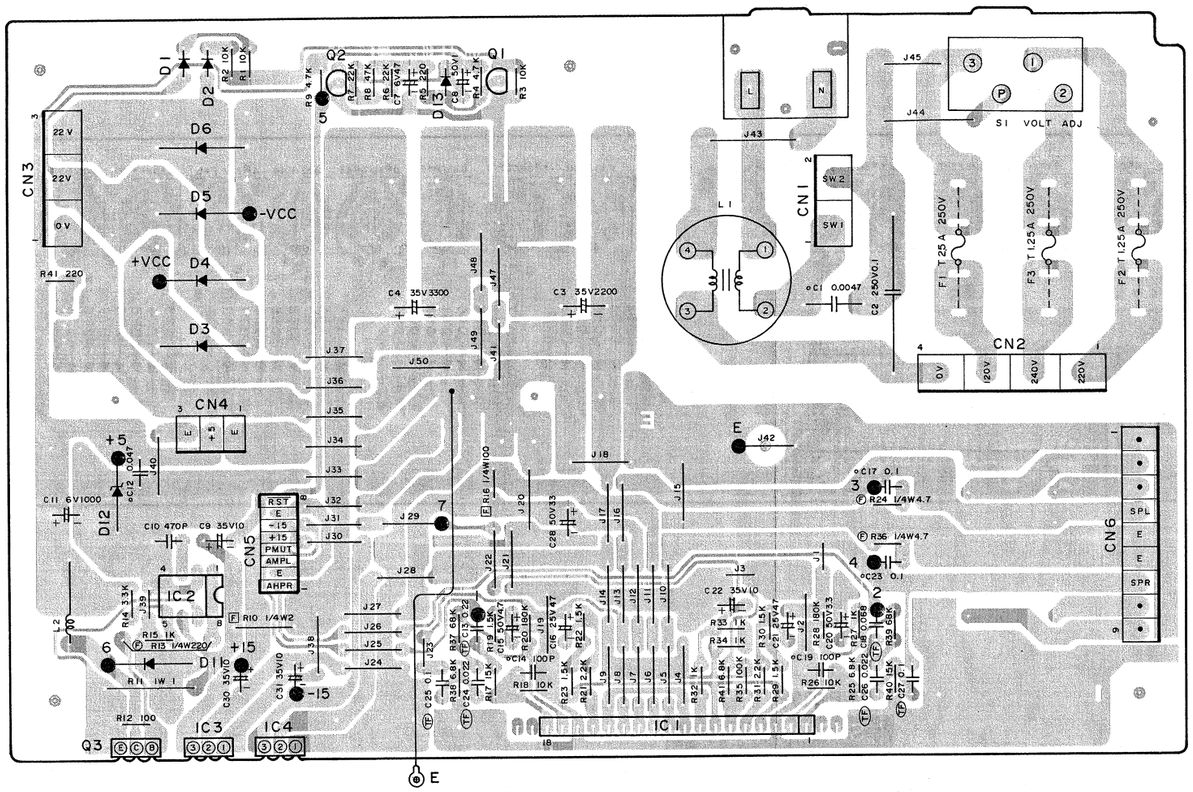
MKB2 ... SX-PX44V

NOTES:

- DIODES
  - D89~176: MA162A

AMP & POWER SUPPLY CIRCUIT BOARD

■ Except for [M] [MC] [XM] [XL] and [XR] **SXPG203711A**

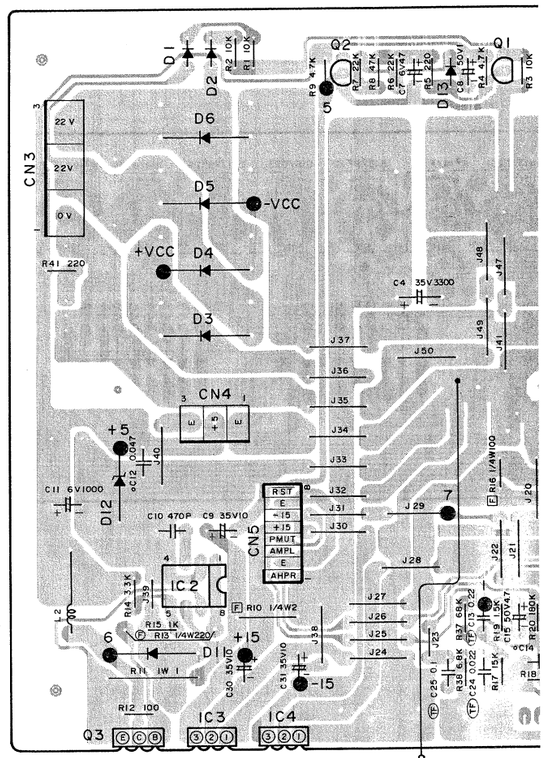


NOTES:

- IC'S
  - IC1: SVIGS4132M2M
  - IC2: SVIGM5291P
  - IC3: SVIGM5F7815
  - IC4: SVIGM5F7915
- TRANSISTORS
  - Q1, 2: 2SC2320LFG
  - Q3: 2SB953AQP
- DIODES
  - D1, 2: SVDGERA1502Y
  - D3~6: SVDGS3V20-15
  - D11: SVDGRK14S
  - D12: MA2062LF
  - D13: MA165TA5
- FUSES
  - F1: XBA2C25TB0
  - F2, 3: XBA2C12TB0

■ Products for [XL] and [XR] **SXPG203741A**

■ Products for [M] [MC] and [XM] areas

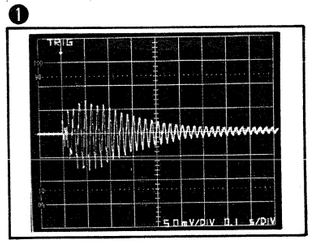


NOTES:

- IC'S
  - IC1: SVIGS41
  - IC2: SVIGM52
  - IC3: SVIGM5F
  - IC4: SVIGM5F
- TRANSISTORS
  - Q1, 2: 2SC2320
  - Q3: 2SB953A

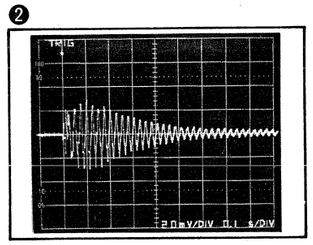
* The tone signal output varies with the level of key pressing force.
In this measurement, the waveform obtained with maximum key pressing force is shown.

❶



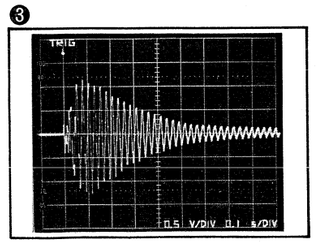
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

❷



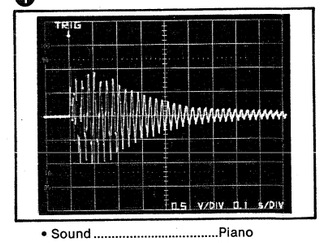
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

❸



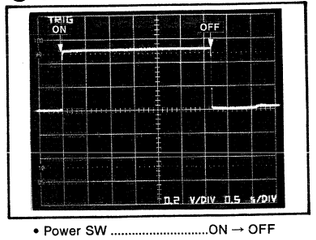
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

❹



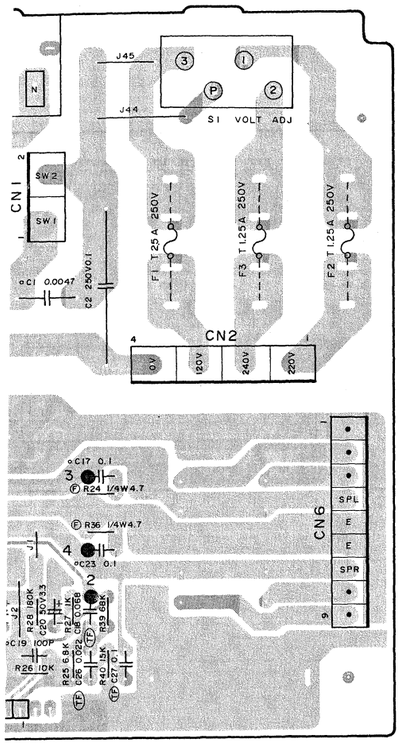
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

❺ $\overline{\text{RST}}$



- Power SW .....ON → OFF

ts for [XL] and [XR] SXPG203741A

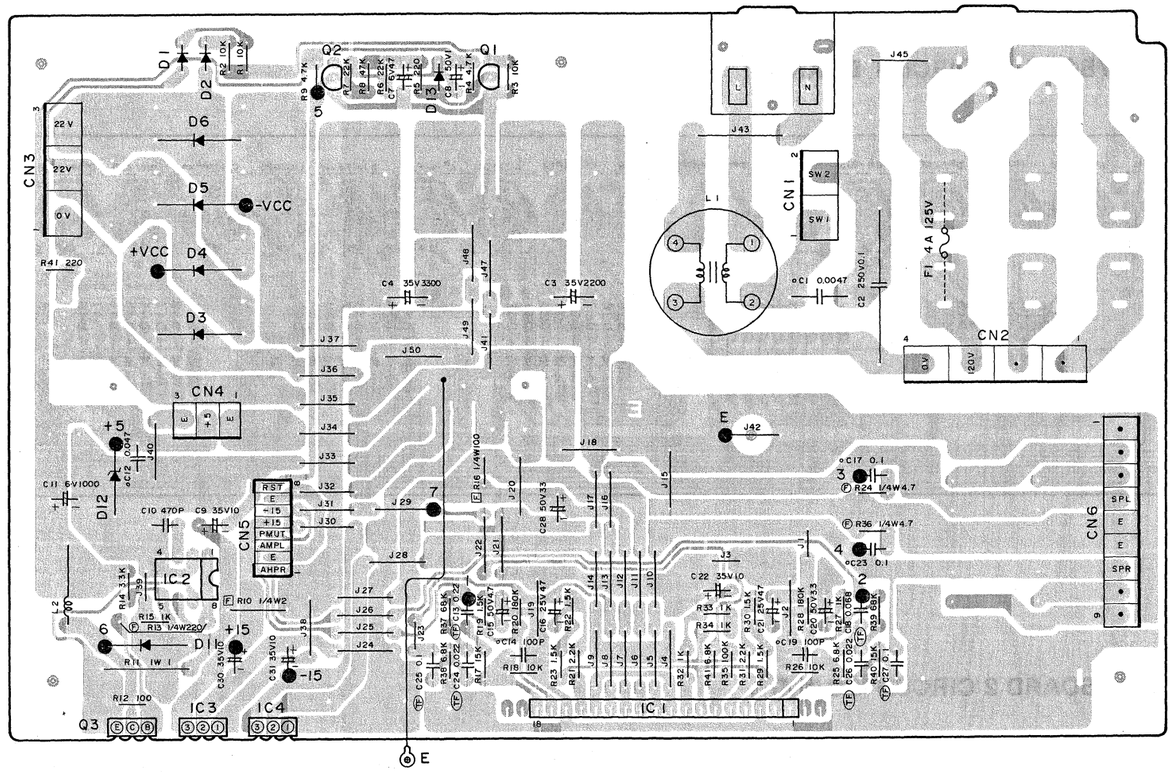


ERA1502Y
S3V20-15
RK14S
062LF
5TA5

2C25TB0
2C12TB0

■ Products for [M] [MC] and [XM] areas

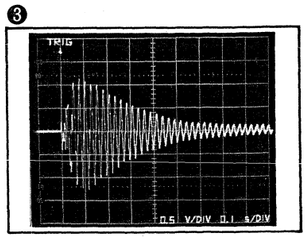
SXPG203731A



NOTES:

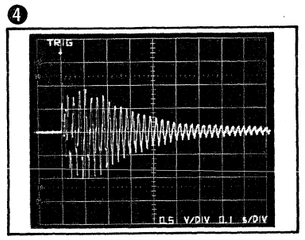
- IC'S
  - IC1: SVIGS4132M2M
  - IC2: SVIGM5291P
  - IC3: SVIGM5F7815
  - IC4: SVIGM5F7915
- TRANSISTORS
  - Q1, 2: 2SC2320LFG
  - Q3: 2SB953AQP
- DIODES
  - D1, 2: SVDGERA1502Y
  - D3~6: SVDGS3V20-15
  - D11: SVDGRK14S
  - D12: MA2062LF
  - D13: MA165TA5
- FUSES
  - F1: XBA1C40NU100

❸



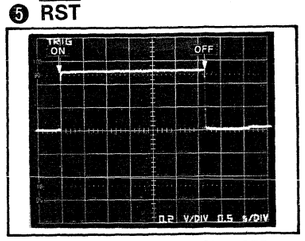
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

❹



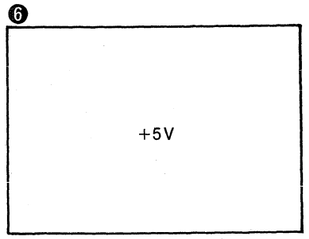
- Sound .....Piano
- Main Volume .....Max
- Keyboard.....C_{52}

❺ $\overline{\text{RST}}$

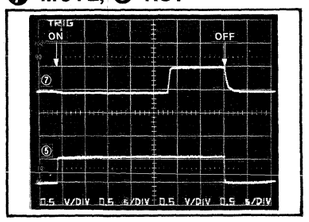


- Power SW .....ON → OFF

❻

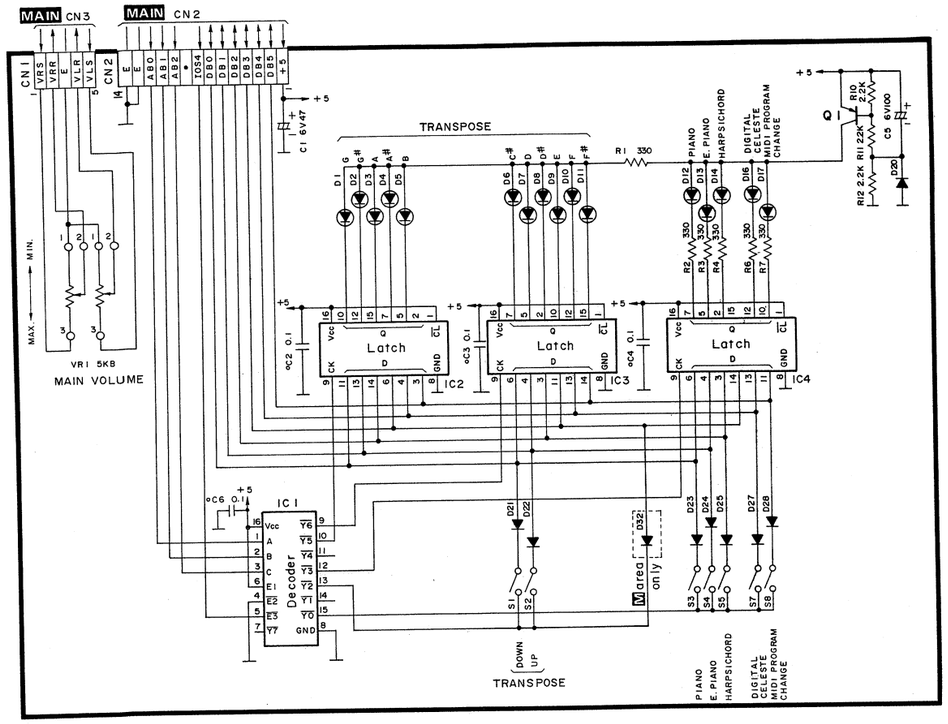


❼ MUTE, ❺ $\overline{\text{RST}}$

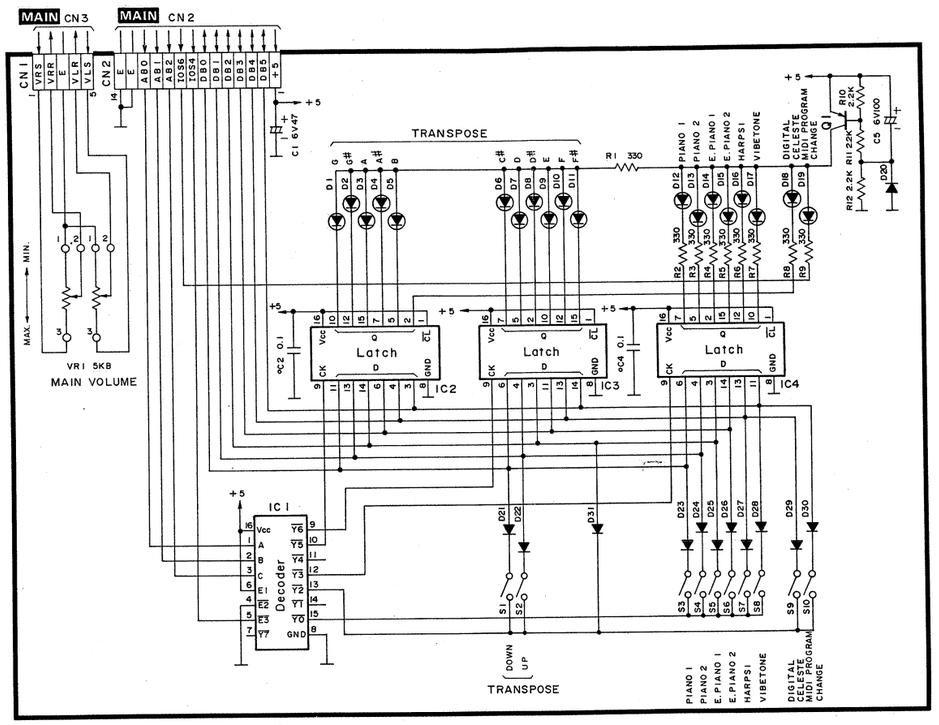


- Power SW .....ON → OFF

■ Products for SX-PX33V

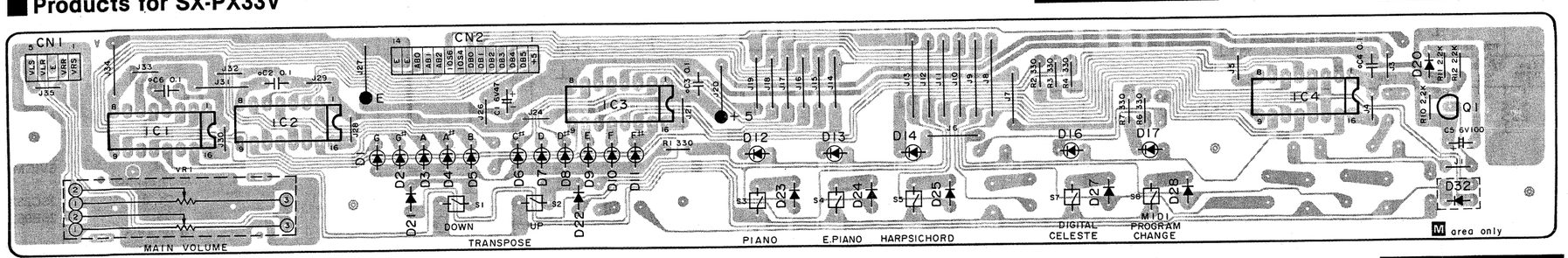


■ Products for SX-PX44V



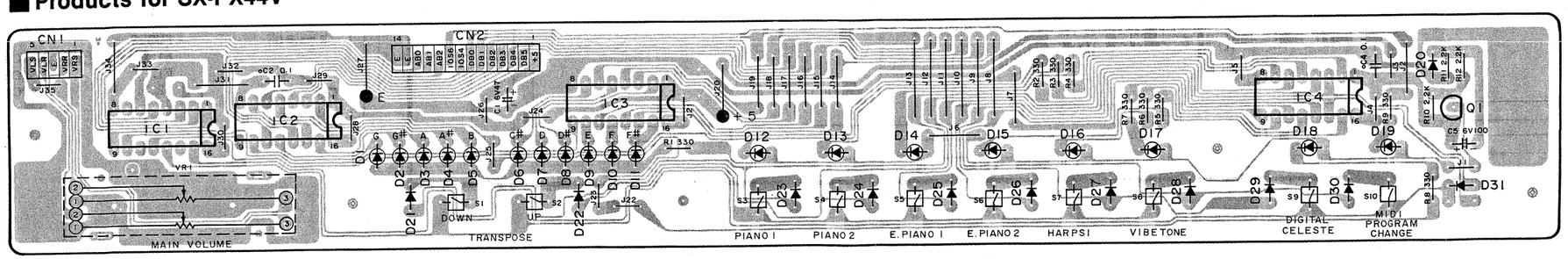
• [M] area **SXPG203331** • Other areas **SXPG203311**

■ Products for SX-PX33V



SXPG203321

■ Products for SX-PX44V



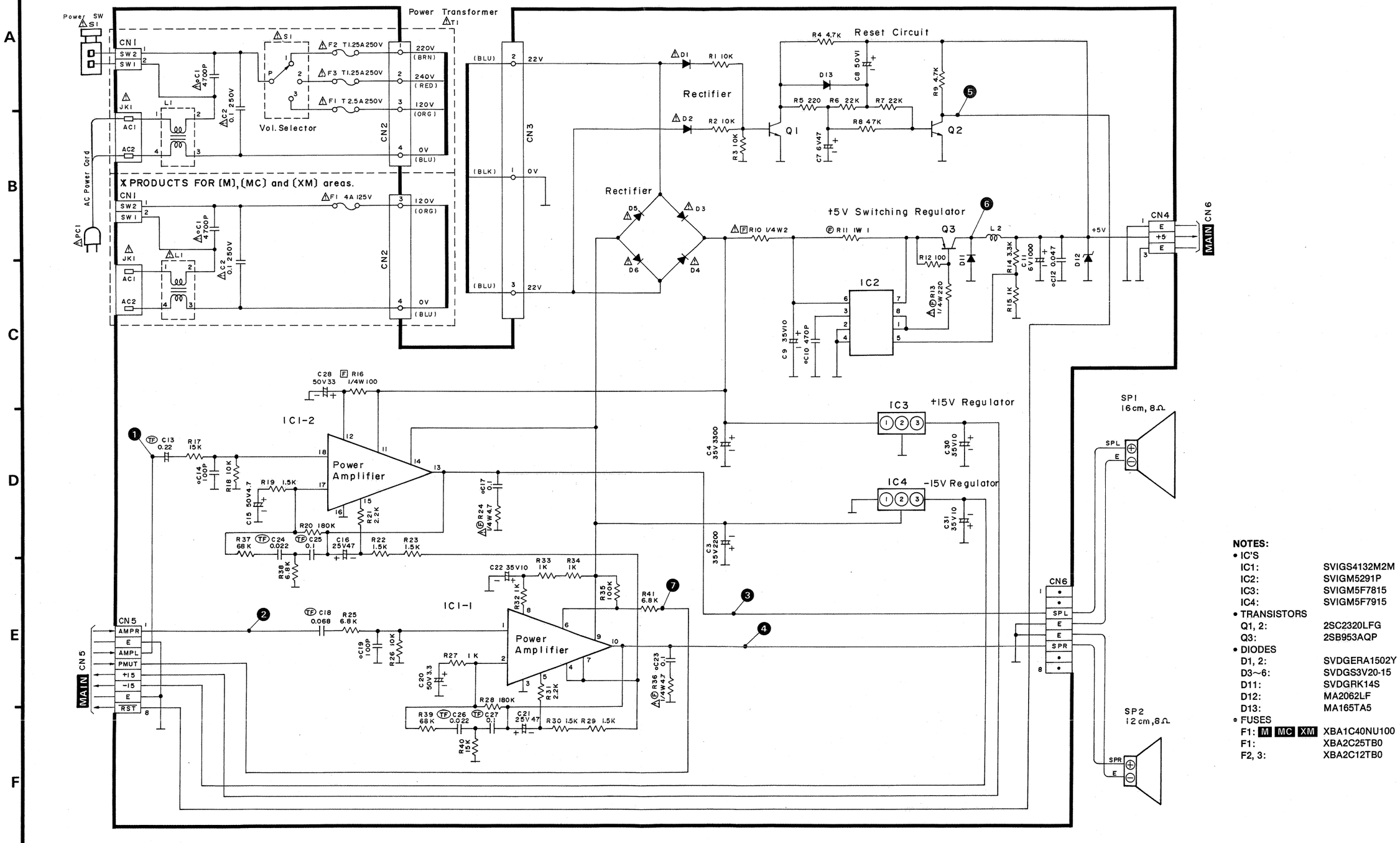
NOTES: SX-PX33V

- IC'S
  - IC1: SVIGM74LS138
  - IC2~4: SVIGM74LS174
- TRANSISTORS
  - Q1: 2SA1015-GR
- DIODES
  - D1~14, 16, 17: LN282R
  - D20~25, 27, 28: MA165TA5
  - D32: M MA165TA5

NOTES: SX-PX44V

- IC'S
  - IC1: SVIGM74LS138
  - IC2~4: SVIGM74LS174
- TRANSISTORS
  - Q1: 2SA1015-GR
- DIODES
  - D1~19: LN282R
  - D20~31: MA165TA5

AS AMP & POWER SUPPLY CIRCUIT DIAGRAM



NOTES:

- IC'S
  - IC1: SVIGS4132M2M
  - IC2: SVIGM5291P
  - IC3: SVIGM5F7815
  - IC4: SVIGM5F7915
- TRANSISTORS
  - Q1, 2: 2SC2320LFG
  - Q3: 2SB953AQP
- DIODES
  - D1, 2: SVDGERA1502Y
  - D3~6: SVDGS3V20-15
  - D11: SVDGRK14S
  - D12: MA2062LF
  - D13: MA165TA5
- FUSES
  - F1: M MC XM XBA1C40NU100
  - F1: XBA2C25TB0
  - F2, 3: XBA2C12TB0

REPLACEMENT PARTS LIST.....P.C.B. and Wiring Parts

Notes:

1. Printed circuit boards assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ PRINTED CIRCUIT BOARD (SX-PX33V)

	NLA	Area	Part No.	Description	Per/Set
○	NLA		SXPG203411	[MAIN]	1
○	NLA		SXPG203711B	[HP]	1
	NLA		SXPG134841A	[MKB1]	1
	NLA		SXPG134851B	[MKB2]	1
○	NLA	[M][MC][XM]	SXPG203731A	[AS]	1
○	NLA	[XL][XR]	SXPG203741A	[AS]	1
○	NLA	Others	SXPG203711A	[AS]	1
○	NLA	[M]	SXPG203331	[CP]	1
○	NLA	Others	SXPG203311	[CP]	1

■ PRINTED CIRCUIT BOARD (SX-PX44V)

	NLA	Area	Part No.	Description	Per/Set
○	NLA		SXPG203411	[MAIN]	1
○	NLA		SXPG203711B	[HP]	1
	NLA		SXPG134841A	[MKB1]	1
	NLA		SXPG134841B	[MKB2]	1
○	NLA	[MC]	SXPG203731A	[AS]	1
○	NLA	[XL][XR]	SXPG203741A	[AS]	1
○	NLA	Others	SXPG203711A	[AS]	1
○	NLA		SXPG203321	[CP]	1

MAIN MAIN CIRCUIT

	Ref. No	Part. No	Description	Per/Set
		INTEGRATED CIRCUITS		
	IC1	SVIGM74LS07	Hex Buffers (O.C.)	1
	IC2	SVIGTLP513	Photo Coupler	1
	IC3	SVIG7810HCW	1 chip 8 bit Microcomputer	1
	IC4	SVIGM603A114	Gate Array	1
○	IC5	QSIG2PX33AX0	256K bit Programmable ROM	1
○	IC6	BR6116-100	16K bit Static RAM	1
	IC7,12	MN6635	Tone Generator LSI	2
	IC8,14	SVIGBA9221	12 bit D-A Converter	2
	IC9,15	SVIGM5238L	Operational Amplifier	2
	IC10,16	SVIGT74H4051	8-channel Multiplexer	2
	IC11	SVIGU3C04165	4M bit Programmable ROM	1
	IC13,17-19, 21-23	SVIGM5218L	Operational Amplifier	7
	IC20	SVIGLM1894N	Dynamic Noise Reduction	1
	IC24-31	SVIGM74H4066	Quad Bilateral Switches	8

	Ref. No	Part. No	Description	Per/Set
		TRANSISTORS		
S	Q1,13,15,16,18	2SA1015-GR	2SA933STRS (SUB. Part)	5
	Q2,3	2SJ105GR	FET	2
	Q8,10	2SC3940ARS		2
	Q9,11	2SA1534ARS		2
S	Q12,14,17	2SC2320LFG	2SC1310FG (SUB. Part)	3
		DIODES		
	D1-7,10,11	MA165TA5		9
	D8	SVDGRK14S		1
	D9	MA4062	Zener, 6.2V	1
		OSCILLATORS		
	X1	SVQG49S1500T	15MHz, Quartz Oscillator	1
	X2	EFOFC4004A3	4MHz, Ceramic Oscillator	1
	X3	SVQG49S1600T	16MHz, Quartz Oscillator	1
		COMPONENT COMBINATIONS		
	Z1,2,3	EXBPI8472JM	4.7KΩ×8	3
	Z4,5	EXAMR14A1002	1KΩ/2KΩ, Ladder Network	2
		COILS		
	L1-4,14,15	SLQG15W34DPQ	Coil	6
	L5,6,10,11,16, 17	QLQGT1B600MA	Coil	6
		JACKS		
	JK1-3	SJSG1370A	MIDI (THRU, OUT, IN)	3
○	JK4	QJSG002AA	Pedal	1
	JK5-8	SJJG400A	AUX IN, LINE OUT	4
		VARIABLE RESISTOR		
	VR1	EVA06215B55G	500KΩ B, TUNE	1

Ref. No	Part. No	Description	Per/Set
		RESISTORS	
R1	ERDS2TJ221	220Ω	1
R2	ERDS2TJ680	68Ω	1
R3	ERDS2TJ221	220Ω	1
R4	ERDS2TJ151	150Ω	1
R5	ERDS2TJ680	68Ω	1
R6,7	ERDS2TJ221	220Ω	2
R8,9	ERDS2TJ333	33KΩ	2
R10 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	1
R11,12	EROS2TKF1001	1KΩ, 1%	2
R13	ERDS2TJ102	1KΩ	1
R14	ERDS2TJ331	330Ω	1
R15-19	ERDS2TJ103	10KΩ	5
R22,23	ERDS2TJ103	10KΩ	2
R24	ERDS2TJ332	3.3KΩ	1
R25	ERDS2TJ183	18KΩ	1
R26	ERDS2TJ105	1MΩ	1
R30-32	ERDS2TJ472	4.7KΩ	3
R33,34	ERDS2TJ471	470Ω	2
R35,36	EROS2TKF4700	470Ω, 1%	2
R37,38	ERDS2TJ472	4.7KΩ	2
R39,40	EROS2TKF4700	470Ω, 1%	2
R41,42	ERDS2TJ471	470Ω	2
R43	ERDS2TJ123	12KΩ	1
R44	ERDS2TJ683	68KΩ	1
R46-48	ERDS2TJ682	6.8KΩ	3
R49	ERDS2TJ563	56KΩ	1
R50	ERDS2TJ683	68KΩ	1
R51	ERDS2TJ473	47KΩ	1
R52,53	ERDS2TJ101	100Ω	2
R54	ERDS2TJ104	100KΩ	1
R55-57	ERDS2TJ683	68KΩ	3
R58,59	ERDS2TJ333	33KΩ	2
R60	ERDS2TJ683	68KΩ	1
R63	ERDS2TJ104	100KΩ	1
R65,66	ERDS2TJ104	100KΩ	2
R68	ERDS2TJ104	100KΩ	1
R71,72	ERDS2TJ472	4.7KΩ	2
R73	ERDS2TJ331	330Ω	1
R74	ERDS2TJ102	1KΩ	1
R75,76	ERDS2TJ331	330Ω	2
R77,78	ERDS2TJ124	120KΩ	2
R79	ERDS2TJ274	270KΩ	1
R80	ERDS2TJ222	2.2KΩ	1
R81	ERDS2TJ333	33KΩ	1
R82	ERDS2TJ153	15KΩ	1
R83,84	ERDS2TJ124	120KΩ	2
R85	ERDS2TJ274	270KΩ	1
R86	ERDS2TJ105	1MΩ	1
R87	ERDS2TJ474	470KΩ	1
R88	ERDS2TJ683	68KΩ	1
R90-92	ERDS2TJ682	6.8KΩ	3
R93	ERDS2TJ563	56KΩ	1
R94	ERDS2TJ683	68KΩ	1
R95	ERDS2TJ473	47KΩ	1
R96,97	ERDS2TJ104	100KΩ	2
R98,99	ERDS2TJ473	47KΩ	2
R100,101	ERDS2TJ222	2.2KΩ	2
R102	ERDS2TJ102	1KΩ	1
R103,104	ERDS2TJ332	3.3KΩ	2
R105	ERDS2TJ102	1KΩ	1
R106	ERDS2TJ224	220KΩ	1
R109	ERDS2TJ222	2.2KΩ	1
R110	ERDS2TJ105	1MΩ	1
R111	ERDS2TJ474	470KΩ	1
R112	ERDS2TJ224	220KΩ	1
R113	ERDS2TJ222	2.2KΩ	1
R114 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	1
R115,116	ERDS2TJ104	100KΩ	2
R117	ERDS2TJ221	220Ω	1
R118	ERDS2TJ102	1KΩ	1
R119 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	1
R120	ERDS2TJ222	2.2KΩ	1
R121	ERDS2TJ223	22KΩ	1
R122	ERDS2TJ102	1KΩ	1
R123	ERDS2TJ223	22KΩ	1
R124	ERDS2TJ104	100KΩ	1
R125	ERDS2TJ223	22KΩ	1
R126	ERDS2TJ103	10KΩ	1
R127	ERDS2TJ471	470Ω	1
R128	ERDS2TJ223	22KΩ	1
R129	ERDS2TJ472	4.7KΩ	1
R130	ERDS2TJ334	330KΩ	1
R131	ERDS2TJ123	12KΩ	1
R132	ERDS2TJ222	2.2KΩ	1
R133 ⚠	ERD2FCJ4R7	4.7Ω, 1/4W, Fuse Type	1
R134-149	ERDS2TJ473	47KΩ	16
R150,151	ERDS2TJ101	100Ω	2
R152	ERDS2TJ102	1KΩ	1
R153	ERDS2TJ473	47KΩ	1
R155,156	ERDS2TJ103	10KΩ	2
R200,201	ERDS2TJ220	22Ω	2
R206,207	ERDS2TJ472	4.7KΩ	2
		CAPACITORS	
C1,2	ECCR1H220J	22pF	2
C3	ECEA0JKA470	47μF, 6.3V	1
C4	ECKR1E473ZV	0.047μF	1
C5	ECEA1CKA100	10μF, 16V	1
C6	ECCR1H221J	220pF	1
C7	ECKR1E473ZV	0.047μF	1
○ C8,9	ECSF1ED225	2.2μF, 25V	2
○ C11	ECSF1ED225	2.2μF, 25V	1
○ C13	ECSF1ED225	2.2μF, 25V	1
C14	ECEA0JKA331	330μF, 6.3V	1
C15-22	ECQG1H472KZ	0.0047μF	8
C23	ECEA0JKA470	47μF, 6.3V	1
C24	ECKR1E473ZV	0.047μF	1
C25	ECEA1CKA100	10μF, 16V	1
C26	ECCR1H221J	220pF	1
C27	ECKR1E473ZV	0.047μF	1
C28	ECEA0JKA331	330μF, 6.3V	1
C29	ECEA0JKA470	47μF, 6.3V	1
○ C30,31	ECSF1ED225	2.2μF, 25V	2
○ C33	ECSF1ED225	2.2μF, 25V	1
C35-41	ECQG1H472KZ	0.0047μF	7
C43-58	ECQG1H102KZ	0.001μF	16
C59	ECKR1E473ZV	0.047μF	1
C60	ECCR1H680J	68pF	1
C62	ECQG1H102KZ	0.001μF	1
C63	ECQG1H472KZ	0.0047μF	1
C64	ECQG1H102KZ	0.001μF	1
C65	ECCR1H681J	680pF	1
C66	ECCR1H331J	330pF	1
C67	ECCR1H680J	68pF	1
C68	ECEA1HKA010	1μF, 50V	1
C69	ECQG1H102KZ	0.001μF	1
C71	ECQG1H472KZ	0.0047μF	1
C72	ECQG1H102KZ	0.001μF	1
C73	ECCR1H681J	680pF	1

Ref. No	Part. No	Description	Per/Set
C74	ECCR1H331J	330pF	1
C75	ECCR1H680J	68pF	1
C76	ECEA1HKA010	1μF, 50V	1
C79	ECKR1E473ZV	0.047μF	1
C80	ECCR1H470J	47pF	1
C81	ECQG1H152KZ	0.0015μF	1
C82	ECEA1HKA010	1μF, 50V	1
C83,84	ECEA1CKA470	47μF, 16V	2
C85	ECRR1H104ZF	0.1μF	1
C86	ECQG1H102KZ	0.001μF	1
C87	ECEA1CKA100	10μF, 16V	1
C88,89	ECQG1H682KZ	0.0068μF	2
C90	ECKR1E473ZV	0.047μF	1
C91	ECEA1CKA100	10μF, 16V	1
C92	ECEA1HKA010	1μF, 50V	1
C93	ECQG1H332KZ	0.0033μF	1
C94	ECCR1H470J	47pF	1
C95	ECQG1H152KZ	0.0015μF	1
C96,97	ECCR1H220J	22pF	2
C98	ECCR1H680J	68pF	1
C99	ECKR1E473ZV	0.047μF	1
C100,101	ECCR1H220J	22pF	2
C102,103	ECEA1HKN010	1μF, 50V	2
C104,105	ECCR1H470J	47pF	2
C106	ECRR1H104ZF	0.1μF	1
C107,108	ECCR1H331J	330pF	2
C109	ECRR1H104ZF	0.1μF	1
C110,111	ECCR1H331J	330pF	2
C112	ECEA1HKA010	1μF, 50V	1
C113,114	ECEA1CKA100	10μF, 16V	2
C115	ECEA1HKA010	1μF, 50V	1
C116	ECEA1CKA101	100μF, 16V	1
C117	ECKR1E473ZV	0.047μF	1
C118	ECEA1EKA4R7	4.7μF, 25V	1
C119	ECKR1E473ZV	0.047μF	1
C120	ECEA0JKA331	330μF, 6.3V	1
C121	ECKR1E473ZV	0.047μF	1
C122	ECEA0JKA331	330μF, 6.3V	1
C123	ECEA1CKN100	10μF, 16V	1
C124	ECEA1CKA101	100μF, 16V	1
C125	ECKR1E473ZV	0.047μF	1
C126	ECEA1CKA100	10μF, 16V	1
C127-135	ECKR1E473ZV	0.047μF	9
C137	ECQM1H223KV	0.022μF	1
C138	ECQM1H103KV	0.01μF	1
C140	ECQV1H473JZ	0.047μF	1
C141	ECQM1H223KV	0.022μF	1
C143-145	ECKR1E473ZV	0.047μF	3
C146	ECEA1CKA101	100μF, 16V	1
C147	ECEA0JKA101	100μF, 6.3V	1
C148	ECKR1E473ZV	0.047μF	1
C151,152	ECKR1E473ZV	0.047μF	2
C153	ECEA1HKAR47	0.47μF, 50V	1
C154	ECKR1E473ZV	0.047μF	1
C155	ECRR1H104ZF	0.1μF	1
C156	ECKR1E473ZV	0.047μF	1
C157	ECEA0JKA331	330μF, 6.3V	1
C158	ECKR1E473ZV	0.047μF	1
C159	ECQG1H102KZ	0.001μF	1
C160	ECKR1E473ZV	0.047μF	1
C163	ECKR1E473ZV	0.047μF	1
C165	ECKR1E473ZV	0.047μF	1
C166	ECRR1H104ZF	0.1μF	1
C170,171	ECRR1H104ZF	0.1μF	2

HP HEADPHONES CIRCUIT

Ref. No	Part. No	Description	Per/Set
COIL			
L1	SLQG15W34DPQ	Coil	1
JACK			
JK1	SJJG100A	Headphones	1
RESISTORS			
R1,2 ⚠	ERG1ANJP680S	68Ω, 1W, Flame-Proof	2
CAPACITORS			
C1,2	ECCR1H331J	330pF	2
C3	ECRR1H104ZF	0.1μF	1

MKB1 MANUAL KEYBOARD 1 CIRCUIT

Ref. No	Part. No	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	MN50020PGV	Gate Array	1
IC2	MN1231	1k bit Programmable ROM	1
DIODES			
S D1-88	MA162A	MA150IR (SUB. Part)	88
OSCILLATOR			
X1	EFOFC4004A3	4MHz, Ceramic Oscillator	1
SWITCHES			
S1-14	SSPG7002A	Rubber Switch (7 pcs. on one)	2
S15-44	SSPG6002A	Rubber Switch (6 pcs. on one)	5
RESISTORS			
R1	ERDS2TJ101	100Ω	1
R2	ERDS2TJ103	10KΩ	1
R3	ERDS2TJ222	2.2KΩ	1
R4	ERDS2TJ472	4.7KΩ	1
CAPACITORS			
C1	ECCR1H681J	680pF	1
C2	ECKR1E473ZV	0.047μF	1
C3	ECCR1H681J	680pF	1
C4	ECEA1CU470	47μF, 16V	1

MKB2 MANUAL KEYBOARD 2 CIRCUIT (SX-PX33V)

	Ref. No	Part. No	Description	Per/Set
			DIODES	
S	D89-152	MA162A	MA150IR (SUB. Part)	64
			COMPONENT COMBINATION	
	Z1	EXBP88332JM	3.3KΩ×8	1
			SWITCHES	
	S45-58	SSPG7002A	Rubber Switch (7 pcs. on one)	2
	S59-76	SSPG6002A	Rubber Switch (6 pcs. on one)	3

MKB2 MANUAL KEYBOARD 2 CIRCUIT (SX-PX44V)

	Ref. No	Part. No	Description	Per/Set
			DIODES	
S	D89-176	MA162A	MA150IR (SUB. Part)	88
			COMPONENT COMBINATION	
	Z1	EXBP88332JM	3.3KΩ×8	1
			SWITCHES	
	S45-58	SSPG7002A	Rubber Switch (7 pcs. on one)	2
	S59-88	SSPG6002A	Rubber Switch (6 pcs. on one)	5

AS AMP & POWER SUPPLY CIRCUIT

	Ref. No	Part. No	Description	Per/Set
			INTEGRATED CIRCUITS	
	IC1	SVIGS4132M2M	Power Amplifier	1
	IC2	SVIGM5291P	Switching Regulator	1
	IC3	SVIGM5F7815	+15V Voltage Regulator	1
	IC4	SVIGM5F7915	-15V Voltage Regulator	1
			TRAISISTORS	
S	Q1,2	2SC2320LFG	2SC1310FG (SUB. Part)	2
	Q3	2SB953AQP		1
			DIODES	
	D1,2 ⚠	SVDGERA1502Y	Rectifier	2
S	D3-6 ⚠	SVDGS3V20-15	Rectifier	4
	D11	SVDGRK14S		1
	D12	MA2062LF	Zener, 6.2V	1
	D13	MA165TA5		1
			COIL & LINE FILTER	
	L1 ⚠	SLTGLF3	Line Filter	1
	L2	SLCG1A121T	Coil	1

	Ref. No.	Part No.	Description	Per/Set
			JACKS	
○	JK1 [XL][XR] ⚠	SJSD16	AC IN	1
○	JK1 ⚠	SJS9236	AC IN, except for [XL],[XR]	1
			SWITCH	
	S1 ⚠	SSRG100A	Voltage Selector, except for [M],[MC],[XM]	1
			FUSES	
	F1 [M][MC] ⚠ [XM]	XBA1C40NU100	4A, 125V	1
	F1 ⚠	XBA2C25TB0	T2.5A, 250V ┐ except for	1
	F2,3 ⚠	XBA2C12TB0	T1.25A, 250V ┘ [M],[MC],[XM]	2
			RESISTORS	
	R1-3	ERDS2TJ103	10KΩ	3
	R4	ERDS2TJ472	4.7KΩ	1
	R5	ERDS2TJ221	220Ω	1
	R6,7	ERDS2TJ223	22KΩ	2
	R8	ERDS2TJ473	47KΩ	1
	R9	ERDS2TJ472	4.7KΩ	1
	R10 ⚠	ERQ14AJ2R0P	2Ω, 1/4W, Fuse Type	1
	R11 ⚠	ERX1ANJP1R0S	1Ω, 1W, Flame-Proof	1
	R12	ERDS2TJ101	100Ω	1
	R13 ⚠	ERD25FJ221	220Ω, 1/4W, Flame-Proof	1
	R14	ERDS2TJ332	3.3KΩ	1
	R15	ERDS2TJ102	1KΩ	1
	R16 ⚠	ERD2FCG101	100Ω, 1/4W, Fuse Type	1
	R17	ERDS2TJ153	15KΩ	1
	R18	ERDS2TJ103	10KΩ	1
	R19	ERDS2TJ152	1.5KΩ	1
	R20	ERDS2TJ184	180KΩ	1
	R21	ERDS2TJ222	2.2KΩ	1
	R22,23	ERDS2TJ152	1.5KΩ	2
	R24 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	R25	ERDS2TJ682	6.8KΩ	1
	R26	ERDS2TJ103	10KΩ	1
	R27	ERDS2TJ102	1KΩ	1
	R28	ERDS2TJ184	180KΩ	1
	R29,30	ERDS2TJ152	1.5KΩ	2
	R31	ERDS2TJ222	2.2KΩ	1
	R32-34	ERDS2TJ102	1KΩ	3
	R35	ERDS2TJ104	100KΩ	1
	R36 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	R37	ERDS2TJ683	68KΩ	1
	R38	ERDS2TJ682	6.8KΩ	1
	R39	ERDS2TJ683	68KΩ	1
	R40	ERDS2TJ153	15KΩ	1
	R41	ERDS2TJ682	6.8KΩ	1
			CAPACITORS	
	C1 ⚠	ECKCVA1472MF	4700pF, Line-Capacitor	1
	C2 ⚠	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor	1
	C3	ECEA1VU222	2200μF, 35V	1
	C4	ECEA1VU332	3300μF, 35V	1
	C7	ECEA0JKA470	47μF, 6.3V	1
	C8	ECEA1HKA010	1μF, 50V	1
	C9	ECEA1VKA100	10μF, 35V	1
	C10	ECCR1H471J	470pF	1

Ref. No.	Part No.	Description	Per/Set
C11	ECEA0JU102	1000μF, 6.3V	1
C12	ECKR1E473ZV	0.047μF	1
C13	ECQV1H224JZ	0.22μF	1
C14	ECCR1H101J	100pF	1
C15	ECEA1HKA4R7	4.7μF, 50V	1
C16	ECEA1EKA470	47μF, 25V	1
C17	ECRR1H104ZF	0.1μF	1
C18	ECQV1H683JZ	0.068μF	1
C19	ECCR1H101J	100pF	1
C20	ECEA1HKA3R3	3.3μF, 50V	1
C21	ECEA1EKA470	47μF, 25V	1
C22	ECEA1VKA100	10μF, 35V	1
C23	ECRR1H104ZF	0.1μF	1
C24	ECQB1H223JZ	0.022μF	1
C25	ECQV1H104JZ	0.1μF	1
C26	ECQB1H223JZ	0.022μF	1
C27	ECQV1H104JZ	0.1μF	1
C28	ECEA1HKA330	33μF, 50V	1
C30,31	ECEA1VKA100	10μF, 35V	2

CP CONTROL PANEL CIRCUIT (SX-PX33V)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM74LS138	Decoder	1
IC2-4	SVIGM74LS174	Hex D-type Flip-Flops	3
TRANSISTOR			
S Q1	2SA1015-GR	2SA933STRS (SUB. Part)	1
DIODES			
D1-14,16,17	LN282R	LED (Red)	16
D20-25,27,28	MA165TA5		8
D32 [M]	MA165TA5		1
SWITCHES			
S1-5,7,8	SSHG1046A	Push switch	7
VARIABLE RESISTOR			
VR1	EWD06910B53G	5KΩ B, MAIN VOLUME	1
RESISTORS			
R1-4	ERDS2TJ331	330Ω	4
R6,7	ERDS2TJ331	330Ω	2
R10-12	ERDS2TJ222	2.2KΩ	3
CAPACITORS			
C1	ECEA0JKA470	47μF, 6.3V	1
C2-4	ECRR1H104ZF	0.1μF	3
C5	ECEA0JKA101	100μF, 6.3V	1
C6	ECRR1H104ZF	0.1μF	1

CP CONTROL PANEL CIRCUIT (SX-PX44V)

Ref. No.	Part No.	Description	Per/Set
INTEGRATED CIRCUITS			
IC1	SVIGM74LS138	Decoder	1
IC2-4	SVIGM74LS174	Hex D-type Flip-Flops	3
TRANSISTOR			
S Q1	2SA1015-GR	2SA933STRS (SUB. Part)	1
DIODES			
D1-19	LN282R	LED (Red)	19
D20-31	MA165TA5		12
SWITCHES			
S1-10	SSHG1046A	Push switch	10
VARIABLE RESISTOR			
VR1	EWD06910B53G	5KΩ B, MAIN VOLUME	1
RESISTORS			
R1-9	ERDS2TJ331	330Ω	9
R10-12	ERDS2TJ222	2.2KΩ	3
CAPACITORS			
C1	ECEA0JKA470	47μF, 6.3V	1
C2	ECRR1H104ZF	0.1μF	1
C4	ECRR1H104ZF	0.1μF	1
C5	ECEA0JKA101	100μF, 6.3V	1

■ WIRING PART (SX-PX33V)

Ref. No.	Part No.	Description	Per/Set
○ W1	QEXG05011SSA	Connector with Wire	1
○ W2	QEXG08008SSA	Connector with Wire	1
○ W3	QEXG03016ZA	Connector with Wire	1
○ W4	QEXG04026SSA	Connector with Wire	1
○ W5	QEXG14008SSA	Connector with Wire	1
○ W6	QEXG15002SSA	Connector with Wire	1
○ W7	QEXG09005ZA	Connector with Wire	1

■ WIRING PARTS (SX-PX44V)

Ref. No.	Part No.	Description	Per/Set
○ W1	QEXG05011SSA	Connector with Wire	1
○ W2	QEXG08008SSA	Connector with Wire	1
○ W3	QEXG03016ZA	Connector with Wire	1
○ W4	QEXG04026SSA	Connector with Wire	1
○ W5	QEXG14008SSA	Connector with Wire	1
○ W6	QEXG15002SSA	Connector with Wire	1
○ W7	QEXG09007ZA	Connector with Wire	1

REPLACEMENT PARTS LIST.....Cabinet and Chassis Parts

Notes:

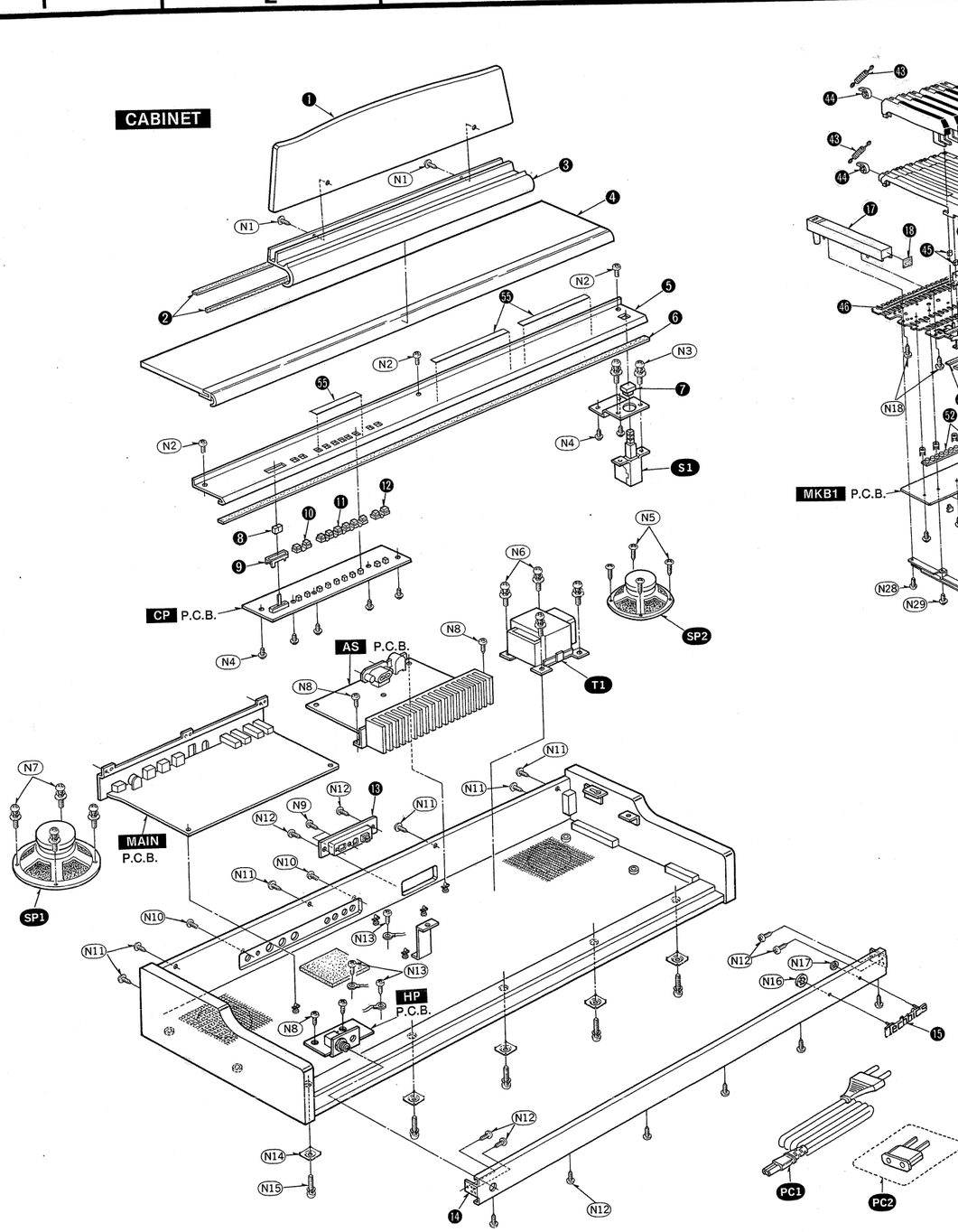
1. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. ○ mark are new parts.
3. For part No. with area mark, check the area when placing an order.

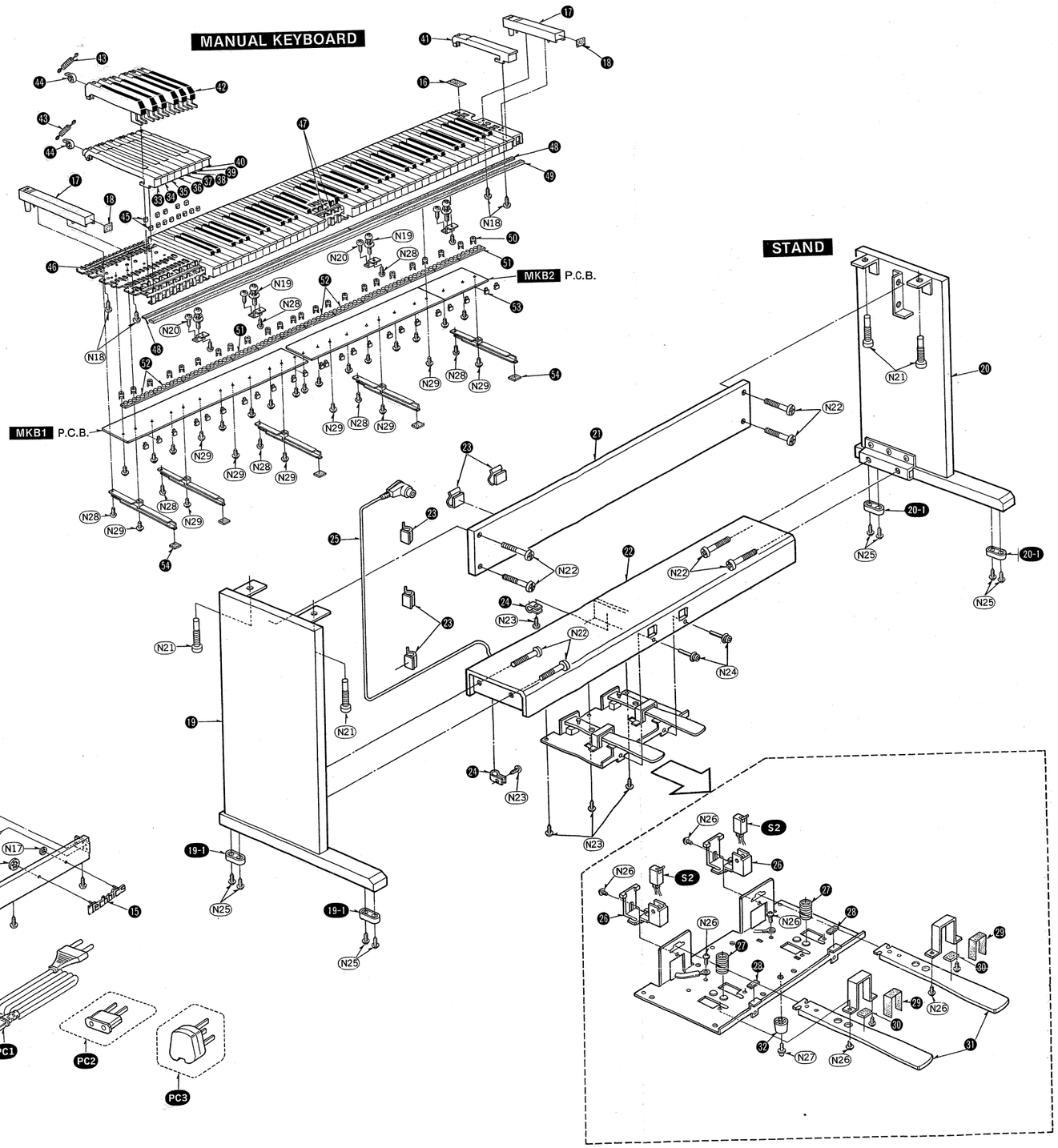
SX-PX33V CABINET & CHASSIS PARTS

	Ref. No.	Part No.	Discription	Per/Set
		SWITCHES		
	S1 ⚠	SSHG1050A	Power Switch	1
○	S2	SRDSMLS-2	Pedal Switch	2
		SPEAKERS		
○	SP1	QASG16PL01A	16cm, 8Ω	1
○	SP2	QASG12PL01A	12cm, 8Ω	1
		TRANSFORMER		
	T1 [M][MC] ⚠ [XM]	SLTG5M31	Power Transformer	1
	T1 ⚠	SLTG5M30	Power Transformer, Other areas	1
		POWER CORD & PLUG		
	PC1 [XS] ⚠	SJAG39	AC Power Cord	1
	PC1[XL][XR] ⚠	SJAG61	AC Power Cord	1
	PC1 [M][MC] ⚠ [XM]	SJAG62	AC Power Cord	1
	PC1	SJAG41	AC Power Cord, Other areas	1
	PC2 [X] ⚠	SJP5213-1	Attachment Plug, [X]only	1
	PC3 [XD] ⚠	SJPG1350A	Power Plug, [XD]only	1
		CABINET PARTS		
○	1	QGAG1005AA	Panel] (Music Rack)	1
○	2	QMFG1014BA	Felt] (Music Rack)	2
○	3	QGKG0016AA	Ornament	1
○	4	QKQGA017AA	Top Cover	1
○	5	QGPG0009AA	Control Panel	1
○	6	QMFG1034AA	Felt (Red)	1
○	7	QGUG1040AA	Button (Power Switch)	1
	8	SBNG7050A	Knob] (Slide Volume)	1
	9	SGEG260A	Ornament] (Slide Volume)	1
○	10	QGUG1031AA	Button (Transpose)	1
○	11	QGUG1032AA	Button (Sound etc.)	1
○	12	QGKG0019BA	Jack Panel	1
○	13	QKSGE005AA	Ornament	1
○	14	SGBG160B	Technics Badge	1
○	15	QMRG2007AA	Insulation Sheet	1
	16	SGWG2200B	End Cover Panel	2
	17	SHSG3690A	Felt	2
○	56 [M]	QQLG019AA	MIDI Seal	1
○	56	QQLG018AA	MIDI Seal, Other areas	1
		STAND		
○	18	QKQGB071AA	Left Plank Ass'y	1
	18-1	[SHRG2130B	Foot	2
○	19	QKQGB072AA	Right Plank Ass'y	1
	19-1	[SHRG2130B	Foot	2
○	20	QKQGD008AA	Crossboard	1
○	21	QKQGM002AAK	Pedal Box	1
	22	SHRG9620A	Cord Clamper	5
	23	SHRG1230A	Cord Clamper	2
○	24	QJLG002AA	Pedal Cord	1
○	25	QMWG8005AA	Pedal Switch Case	2
○	26	SUSG441A	Spring	2
	27	SHSG2790A	Felt	2
	28	SHSG2750A	Felt	2
	29	SHSG2770A	Felt	2
○	30	STBG3111A	Pedal	2
	31	SKLG160A	Foot	1

	Ref. No.	Part No.	Discription	Per/Set
		MANUAL KEYBOARD		
○	32	STBGA1036A	White Key (First Octave E Key)	1
○	33	STBG1988A	White Key (F Key)	7
○	34	STBG1996A	White Key (G Key)	6
○	35	STBGA1016A	White Key (A Key)	6
○	36	STBG1946A	White Key (B Key)	6
○	37	STBG1956A	White Key (C Key)	6
○	38	STBG1966A	White Key (D Key)	6
○	39	STBG1976A	White Key (E Key)	6
○	40	STBGA1046A	White Key (Top Octave G Key)	1
○	41	STBG2914A	Black Key	31
○	42	QMBG002AA	Spring	76
○	43	STBG9180B	Pulcrum	76
○	44	SHGG9091A	Key Guide Rubber	76
	45	SHRG7780A	Sponge	1
○	46	QMFG1019AA	Felt	1
○	47	QMFG1020AA	Felt	1
○	48	QMFG1023AA	Felt	1
○	49	QMFG1024AA	Felt	1
○	50	QMFG1022AA	Felt	1
	51	SHRG9760A	P.C.B. Spacer	21
	52	SSPG6002A	Rubber Switch (6 pcs. on one)	8
	53	SSPG7002A	Rubber Switch (7 pcs. on one)	4
	54	SHRG9751A	P.C.B. Spacer	21
	55	SHSG5750A	Felt	4
		SCREWS & WASHERS		
	N1	XTT4+12AFZ	Screw	2
	N2	SNEG1880A	Screw	3
	N3	XYN3+F6FZ	Screw with Washer	2
	N4	XTV3+8J	Screw	7
	N5	XTT4+20A	Screw	4
	N6	XYN4+F14	Screw with Washer	4
	N7	XYN4+F25	Screw with washer	4
	N8	XTB35+12A	Screw	4
	N9	XTB3+14GFZ	Screw	2
○	N10	QHDG004AA	Screw	2
	N11	XTT4+25AFZ	Screw	6
	N12	XTB35+12AFZ	Screw	12
	N13	SNEG2660A	Screw	3
	N14	SNEG150A	Washer	5
	N15	SNEG2250A	Screw with Washer	5
	N16	SNEG1780A	Reating Ring	1
	N17	SNEG1770A	Reating Ring	1
	N18	XTB4+14A	Screw	4
	N19	XYN5+F16	Screw with Washer	2
	N20	XTB4+12A	Screw	2
	N21	SNEG2330A	Bolt (Brown)	4
	N22	SNEG2280A	Bolt (Black)	8
	N23	XTB35+14A	Screw	5
	N24	XYN4+F16FZ	Screw with Washer	2
	N25	XTW3+16JFZ	Screw	8
	N26	XTW3+8C	Screw	8
	N27	XYN4+C25	Screw with Washer	1
	N28	XTV3+8C	Screw	6
	N29	XTW3+10T	Screw	21

EXPLODED VIEWS OF CABINET





EXPLODED VIEWS OF CABINET

CABINET

MANUAL KEYBOARD

STAND

MKB 1 P.C.B.

MKB 2 P.C.B.

CP P.C.B.

AS P.C.B.

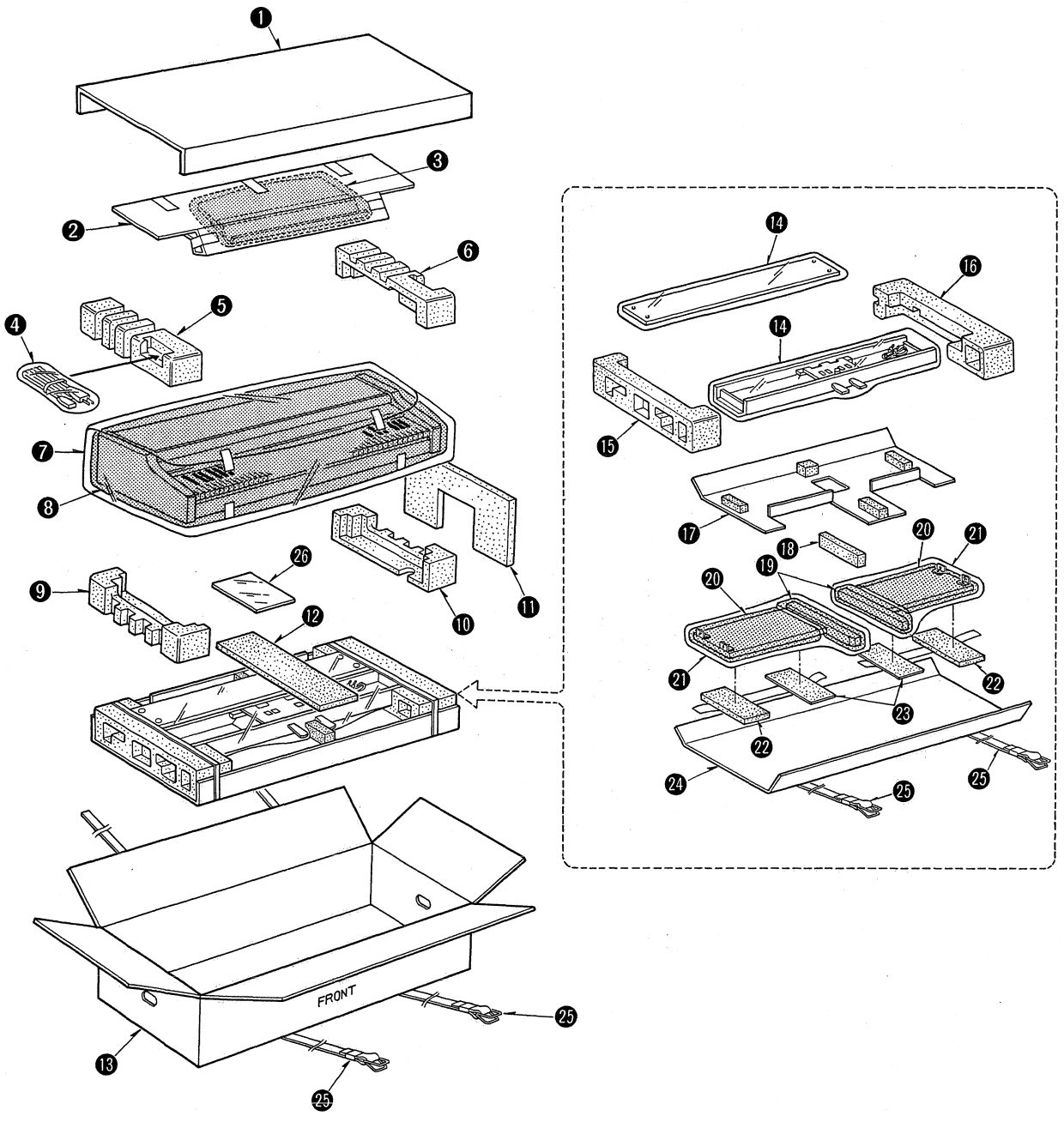
MAIN P.C.B.

HP P.C.B.

	Ref. No.	Part No.	Description	Per/Set
	SWITCHES			
	S1 ⚠	SSHG1050A	Power Switch	1
○	S2	SRDSMLS-2	Pedal Switch	2
	SPEAKERS			
○	SP1	QASG16PL01A	16cm, 8Ω	1
○	SP2	QASG12PL01A	12cm, 8Ω	1
	TRANSFORMER			
	T1 [MC]	SLTG5M31	Power Transformer	1
	T1	SLTG5M30	Power Transformer, Other areas	1
	POWER CORD & PLUG			
	PC1 [XS] ⚠	SJAG39	AC Power Cord	1
	PC1[XL][XR] ⚠	SJAG61	AC Power Cord	1
	PC1 [MC] ⚠	SJAG62	AC Power Cord	1
	PC1 ⚠	SJAG41	AC Power Cord, Other areas	1
	PC2 [X] ⚠	SJP5213-1	Attachment Plug, [X]only	1
	PC3 [XD] ⚠	SJPG1350A	Power Plug, [XD]only	1
	CABINET PARTS			
○	1	QGAG1008AA	Panel] (Music Rack)	1
○	2	QMFG1025BA	Felt]	2
○	3	QGKG0016BA	Ornament	1
○	4	QKQGA019AA	Top Cover	1
○	5	QGPG0010AA	Control Panel	1
○	6	QMFG1035AA	Felt (Red)	1
○	7	QGUG1040AA	Button (Power Switch)	1
	8	SBNG7050A	Knob] (Slide Volume)	1
	9	SGEG260A	Ornament]	1
○	10	QGUG1031AA	Button (Transpose)	1
○	11	QGUG1033AA	Button (Sound)	1
○	12	QGUG1034AA	Button (Digital Celeste etc.)	1
○	13	QGKG0019BA	Jack Panel	1
○	14	QKSGE005CA	Ornament	1
○	15	SGBG160B	Technics Badge	1
○	16	QMRG2007AA	Insulation Sheet	1
	17	SGWG2200B	End Cover Panel	2
	18	SHSG3690A	Felt	2
○	55	QQLG018AA	MIDI Seal	1
	STAND			
○	19	QKQGB071AA	Left Plank Ass'y	1
	19-1	[SHRG2130B	Foot	2
○	20	QKQGB072AA	Right Plank Ass'y	1
	20-1	[SHRG2130B	Foot	2
○	21	QKQGD010AA	Crossboard	1
○	22	QKQGM003AAK	Pedal Box	1
	23	SHRG9620A	Cord Clamper	5
	24	SHRG1230A	Cord Clamper	2
○	25	QJLG002AA	Pedal Cord	1
○	26	QMWG8005AA	Pedal Switch Case	2
○	27	SUSG441A	Spring	2
	28	SHSG2790A	Felt	2
	29	SHSG2770A	Felt	2
	30	SHSG2750A	Felt	2
○	31	STBG3111A	Pedal	2
	32	SKLG160A	Foot	1

	Ref. No.	Part No.	Description	Per/Set
	MANUAL KEYBOARD			
○	33	STBG1936A	White Key (First Octave A Key)	1
○	34	STBG1946A	White Key (B Key)	8
○	35	STBG1956A	White Key (C Key)	7
○	36	STBG1966A	White Key (D Key)	7
○	37	STBG1976A	White Key (E Key)	7
○	38	STBG1986A	White Key (F Key)	7
○	39	STBG1996A	White Key (G Key)	7
○	40	STBGA1016A	White Key (A Key)	7
○	41	STBGA1026A	White Key (Top Octave C Key)	1
○	42	STBG2914A	Black Key	36
○	43	QMBG002AA	Spring	88
○	44	STBG9180B	Fulcrum	88
○	45	SHGG9091A	Key Guide Rubber	88
	46	SHRG7770A	Sponge	1
○	47	QMFG1019AA	Felt	2
	48	QMFG1023AA	Felt	2
	49	QMFG1021AA	Felt	1
	50	SHRG9760A	P.C.B. Spacer	24
	51	SSPG6002A	Rubber Switch (6 pcs. on one)	10
	52	SSPG7002A	Rubber Switch (7 pcs. on one)	4
	53	SHRG9751A	P.C.B. Spacer	24
	54	SHSG5750A	Felt	5
	SCREWS & WASHERS			
	N1	XTT4+12AFZ	Screw	2
	N2	SNEG1880A	Screw	3
	N3	XYN3+F6FZ	Screw with Washer	2
	N4	XTV3+8J	Screw	7
	N5	XTT4+20A	Screw	4
	N6	XYN4+F14	Screw with Washer	4
	N7	XYN4+F25	Screw with washer	4
	N8	XTB35+12A	Screw	4
	N9	XTB3+14GFZ	Screw	2
○	N10	QHDG004AA	Screw	2
	N11	XTT4+25AFZ	Screw	6
	N12	XTB35+12AFZ	Screw	12
	N13	SNEG2660A	Screw	3
	N14	SNEG150A	Washer	5
	N15	SNEG2250A	Screw with Washer	5
	N16	SNEG1780A	Reating Ring	1
	N17	SNEG1770A	Reating Ring	1
	N18	XTB4+14A	Screw	4
	N19	XYN5+F16	Screw with Washer	4
	N20	XTB4+12A	Screw	4
	N21	SNEG2330A	Bolt (Brown)	4
	N22	SNEG2280A	Bolt (Black)	8
	N23	XTB35+14A	Screw	5
	N24	XYN4+F16FZ	Screw with Washer	2
	N25	XTW3+16JFZ	Screw	8
	N26	XTW3+8C	Screw	8
	N27	XYN4+C25	Screw with Washer	1
	N28	XTV3+8C	Screw	9
	N29	XTW3+10T	Screw	24

PACKING



SX-PX33V PACKING PARTS

	Ref. No.		Part No.	Description	Per/Set
○	1		QPGG0043AA	Top Cardboard	1
○	2		QPGG0041AA	Music Rack Cardboard	1
	3		SPHG1490A	Protection Sheet	1
	4		SPHG810A	Polyethylene Bag	1
○	5		SPNG5750D	Upper Pad (Left)	1
○	6		SPNG5751D	Upper Pad (Right)	1
	7		SPHG1110A	Polyethylene Bag	1
	8		SPHG1320A	Protection Sheet	1
	9		SPNG5716A	Lower Pad (Left)	1
	10		SPNG5717A	Lower Pad (Right)	1
○	11		QPNG0066AA	Pad	1
	12		SPNG5794A	Pad	1
○	13		QPGG0042AA	Carton	1
	14		SPHG1570A	Polyethylene Bag	2
○	15		SPNG5655C	Left Side Pad	1
○	16		SPNG5656C	Right Side Pad	1
○	17		QPGG0040AA	Pad	1
○	18		QPNG0065AA	Spacer	1
	19		SPHG1730A	Protection Sheet	2
	20		SPHG1580A	Protection Sheet	2
	21		SPHG2050A	Polyethylene Bag	2
○	22		QPNG0064AA	Pad	2
○	23		QPNG0068AA	Pad	2
○	24		QPGG0043AA	Stand Cardboard	1
	25		SPSG40A	Band	4
				INSTRUCTION BOOK	
○	26	[M]	QQFGPX33VBA	[M] area	1
○	26	[EN]	QQFGPX33VAA	[EN] area	1
○	26		QQFGPX33VCA	Other areas	1

SX-PX44V PACKING PARTS

	Ref. No.		Part No.	Description	Per/Set
○	1		QPGG0045AA	Top Cardboard	1
○	2		QPGG0046AA	Music Rack Cardboard	1
	3		SPHG1490A	Protection Sheet	1
	4		SPHG810A	Polyethylene Bag	1
○	5		SPNG5750D	Upper Pad (Left)	1
○	6		SPNG5751D	Upper Pad (Right)	1
	7		SPHG1110A	Polyethylene Bag	1
	8		SPHG1320A	Protection Sheet	1
	9		SPNG5716A	Lower Pad (Left)	1
	10		SPNG5717A	Lower Pad (Right)	1
○	11		QPNG0066AA	Pad	1
	12		SPNG5794A	Pad	1
○	13		QPGG0044AA	Carton	1
	14		SPHG1570A	Polyethylene Bag	2
○	15		SPNG5655C	Left Side Pad	1
○	16		SPNG5656C	Right Side Pad	1
○	17		QPGG0047AA	Pad	1
	19		SPHG1730A	Protection Sheet	2
	20		SPHG1580A	Protection Sheet	2
	21		SPHG2050A	Polyethylene Bag	2
○	22		QPNG0064AA	Pad	2
○	23		QPNG0068AA	Pad	2
○	24		QPGG0045AA	Stand Cardboard	1
	25		SPSG40A	Band	4
				INSTRUCTION BOOK	
○	26	[EN]	QQFGPX33VAA	[EN] area	1
○	26		QQFGPX33VCA	Other areas	1